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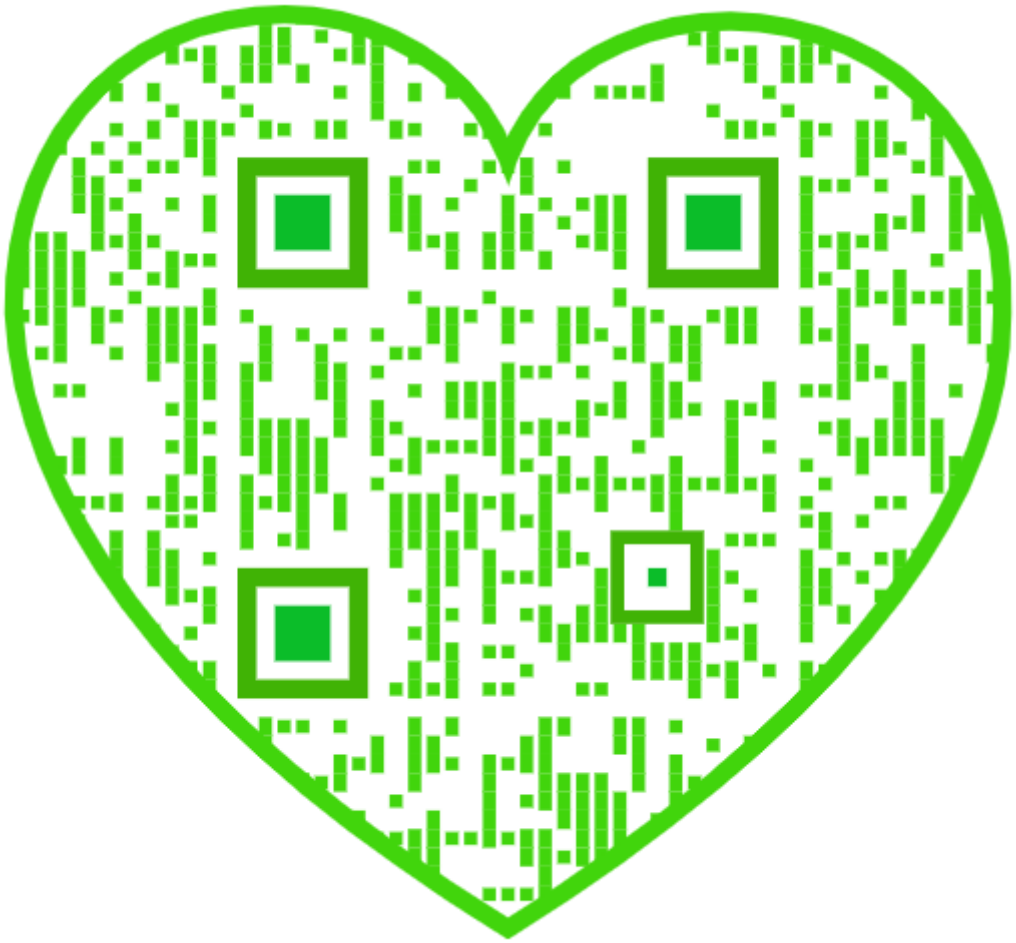

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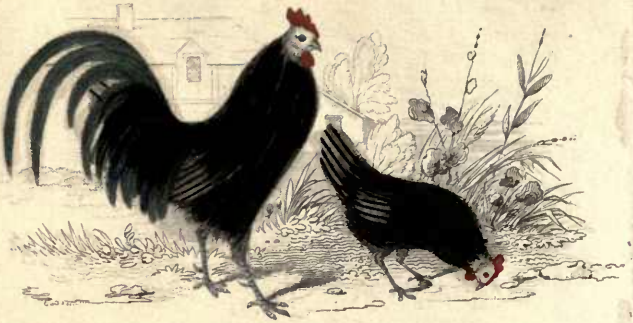
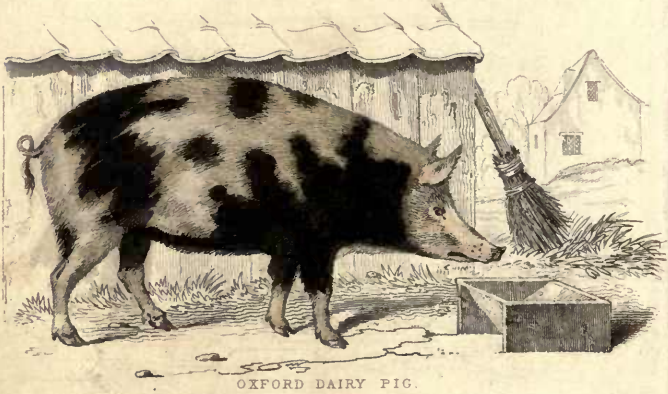


SPANISH COCK & HEN

IMPROVED SUFFOLK COW.



OXFORD DAIRY PIG.

Published by Sherwood, Gilbert & Piper Jan.1st 1842.

A

PRACTICAL TREATISE

ON

BREEDING, REARING, AND FATTENING

ALL KINDS OF

DOMESTIC POULTRY,

PHEASANTS,

PIGEONS, AND RABBITS;

ALSO, THE

MANAGEMENT OF SWINE, MILCH COWS, AND BEES;

WITH INSTRUCTIONS

FOR THE

PRIVATE BREWERY,

ON

CIDER, PERRY, AND BRITISH WINE MAKING.

BY

BONINGTON MOUBRAY, ESQ.

EIGHTH EDITION, WITH ADDITIONS.

LONDON:

PRINTED FOR SHERWOOD, GILBERT, AND PIPER,

PATERNOSTER ROW.

1842.

LONDON:
GILBERT AND RIVINGTON, PRINTERS,
ST. JOHN'S SQUARE.

PREFACE

TO THE

FIRST AND SECOND EDITIONS.

The small work which I present to the reader, for his use and information, I may presume to style truly practical, since I have, throughout my life, been a breeder and keeper, and also an amateur of domestic poultry, pigeons, and rabbits; at some periods, upon rather a considerable scale; and have, for many years together, kept a register of the results. I have further done that which, I believe, no other man has taken the pains to do,—kept a regular stud book for those breeders, scarcely one of which was so poor as to be without a name; and Regulus, Samson, Flea-catcher, Selima, Moreau, Isaac, and Tom Paine, shine with peculiar lustre on my poultry and pigeon list; whilst Corney Butter-cup, Adam, Beelzebub, Lucifer, Carolina, Hecuba, make a figure equally splendid and equally useful, among the rabbits. I think *Montaigne* says somewhere, that if a man would sit and describe that which he has known practically, upon almost any subject, he could scarcely fail of being useful. Just so far my ambition extends. Nor is the world entirely without need of advice on this subject, notwithstanding its antiquity, and the multitude of counsellors. Of this fact I had a signal proof, in a visit a few years since to an honourable baronet in the west, Sir Lawrence Park, in whose extensive park, and most convenient yards and offices, and upon a soil excellently, adapted, I found a sufficiency of poultry could not be raised for the family use; in consequence of which, a very considerable annual expense was incurred at a neighbouring

111704

town, for an additional supply. This was regretted, and described to me as an unaccountable circumstance by the house-keeper. I have here, moreover, an eye to a favourite plan of mine, making the country-house its own mart for the supply of all necessaries, in a far more ample degree than it usually is; implicating, among other domestic objects, poultry, rabbits, fish, mutton, small beef, and an equal abundance of the superior, as of the orchard fruits.

In fine, I have avoided scientific detail, and have addressed plain understandings in the plainest language, aiming at utility solely; and I trust, the keeper of half a dozen hens and a cock, in the corner of his yard, will receive information, in degree, equally useful and satisfactory, with another who may desire to enter upon the most extensive plan.

The SECOND EDITION contains additional articles on PHEASANTS, and ON SWINE: the latter I was induced to add on the representation of several friends, that many persons who keep a poultry-yard for the supply of their table, feel it convenient also to have a breeding sow, or two or three pigs, as a still more substantial aid, in these extravagant times, towards the support of their household. Such economists would surely desire to be led into the right path, and my friends professed to think me no improper guide, knowing that I have been a considerable breeder and feeder of pigs.

The following letter to the publishers, of a Right Hon. Baronet, late President of the Board of Agriculture, the author of this little book feels peculiarly honourable to himself, and a gratifying reward for his pains, as proceeding from a man who, through so great a part of his life, has laboured to obtain a right understanding of every thing which appertains to rural affairs, and who has thence actually conferred so many solid benefits on his country. With respect

to the injunctions of Sir John Sinclair, I had already anticipated them in part; but I could find nothing of material interest respecting poultry in the books he quotes, agricultural writers, in general, neglecting that subject as of inferior concern, unless, indeed, we except one, *and him there will be no doubt that I consulted.* I, however, recollect the description of a most complete poultry-yard some years since, either in the Annals of Agriculture, or Communications to the Board. As to considerable poultry-feeders in and about London, granting there be any such exclusive of the goose-feeders, they must be sought, I apprehend, among the poulterers.—(See p. 80.)

A critic in one of the Magazines objects to my position, that "no live stock is less liable to disease than the rabbit, with regular and careful attention." I repeat the assertion, coupled with another, namely, that without regular and careful attention, no live stock is more precarious.

May 27, 1816.

Letter of the Right Honourable Sir John Sinclair, Bart. to Messrs. Sherwood and Co.

(COPY.)

"GENTLEMEN,

"I have read over Mr. Moubray's Treatise on Domestic Poultry, which seems to be the best work hitherto printed on that subject; but it might be much improved by a careful examination of all the County Reports, and other recent agricultural publications. The reports should be specifically referred to, when quoted, by the page. I will trouble you to procure from the author, or by any other channel, the names of the principal feeders of poultry in and about London, and their places of abode.

"(Signed) JOHN SINCLAIR."

With the *Third Edition*, in the hope of rendering these pages additionally useful, the reader is presented with the result of the Author's

observation and practice in the *Fami'y Dairy.* The convenience of milk, butter, and cream, in an English Country House, is indispensable ; and the object is to obtain those in sufficient plenty, in an appropriate husband-like style, and within the fair line of expense. An attention to the rules herein recommended, the author has no reason to doubt, will not fail to assure such desirable effects.

March 1, 1819.

The FOURTH EDITION contains an addition on the *Nature and Management of Bees;* a subject on which there has ever been a notable disagreement amongst economists, some advocating it as a matter deserving universal attention, others decrying it as a thing of the meanest consequence. The Author has endeavoured to reconcile this difference, and trusts he has succeeded. The Fowls and Animals exhibited in the Frontispiece were selected individuals, drawn from the life by Mr. Webb.

The PIG is a most correct likeness. It was bred in Bucks, but is of the Oxfordshire dairy breed. Those breeds were originally, although light in the ear, yet, in general, *lop-eared,* with a few, as is usual, *upeared;* and that form of the ear has, of late years, become more common, the feeders, as I believe, esteeming the upright, or pricked-eared pigs, as the speediest thrivers and best travellers. The arched or roached-backed, also, is preferred, as consisting of the best part of the carcase to the cutting butcher, by affording a large space for pork-chops. The up-ear in this pig, I am assured, has not been derived from any alien or inferior cross. My ancient and respected friend, Mr. Wynt, from whom I have received constant and beneficial instructions on these subjects, through such a long course of years, sold this in a lot of dairy pigs, at Finchley, and gave me the opportunity of having its form delineated.

The Suffolk Cow is the property of Mr. Brown, of the Southampton Arms, Camden Town, and gives remarkably rich milk, as well as a profitable quantity. The head, perhaps the chief index of the breed, is correctly drawn ; but the picture appears more *leggy,* and somewhat less substantial in form than the original.

The SPANISH FOWLS were sold by Mr. Castang to a person at Holloway, who says, notwithstanding their large size, they are perfectly white fleshed and delicate.

Nov. 21, 1821.

As an addition to the FIFTH EDITION of this little book, the Author conceives he could not fix on any subject more useful, or more generally interesting to his Country readers, than that of the PRIVATE BREWERY—and the consideration which more especially served to fix his choice was, that he has been occasionally and personally conversant in the practice, throughout the greater part of his life. Indeed, this has been one of his hobby-horses, of which he has always kept a competent number : and happy is he, who hath his quiver full of them —warranted of the rational and profitable class—he shall then have no need of steel, of cold lead, of rats-bane, or of a hempen necklace ; nor be reduced to the lamentable necessity of taking to his chair, and beating the devil's tattoo over the miseries of life, which assuredly will never submit to such a remedy. If the *tædium vitæ* (wearisomeness of life) can find a remedy, it must consist in virtuous and useful action, the sphere of which is confined to neither town nor country, but of which the latter is, in an eminent manner the appropriate theatre.

With the common rules for making beer, already so often repeated, the author has also, to the best of his experience and information, dilated on the nature and properties of that universal English beverage, to the end, he trusts, that his readers may profit thereby, and escape all frauds and deceptions, those excepted which they may choose voluntarily to impose on themselves.

May 10, 1824.

Preface to the Sixth Edition.

THE decided favour of the Public having taken off five very large editions of this Work, and the Country friends of the Author, during some time past, having repeated their opinions, that a new impression was in request, and would doubtless be acceptable, it is at length presented to the country, with considerable additions, and every species of improvement within the author's view or recollection.

Two Articles have been added on CHEESE and CIDER ; with also a few wood cuts, which, although we are not so ostentatiously modish or modest as to style ' pictorial embellishments,' we yet trust will pass muster, at least with

some readers. With respect to the figure of the Cow in the Frontispiece, the County of Suffolk has been retained inaccurately; the figure of one differently bred having been substituted at the request of her proprietor, who has also noted an accidental omission in the account of Pea fowls; namely, of the number of days during which the hen sits. Now, the writer never having bred any of that fancy stock, he has lately made inquiry, and is informed that the pea-hen, like the turkey, is confined a month by incubation.

Two objects of practice, an ancient novelty, and a present or actual one, have been omitted in their proper place; —malt combs or dust, as a food to increase milk in cows, and the use of the *symphytum asperum*, or prickly comfrey, as a general cattle, horse, sheep, and pig food. Feeding cows with malt-dust is a very ancient, though never a very general practice; and it will be seen, in the section on cows, that Mr. Cramp allowed a very small quantity; a caution to which I should incline, from the great portion of dust necessarily mixed with the combs. With regard to the comfrey, from the nourishing quality usually attributed to the root, I should suppose the whole plant to be of a feeding nature; though I have generally observed, that where quantity is so superabundant, quality is seldom or never, in any degree, commensurate. Mr. Grant of the Nursery, Lewisham, Kent, appears to have been the introducer of this abundant and easily-cultivated article of cattle food, where specimens may be seen and obtained; and also at Mr. Gibbs' Nursery, Brompton.

May, 1830.

PREFACE

TO THE

SEVENTH EDITION.

EXTENSIVE public patronage has demanded a Seventh Edition of this Work, to which the Author has made such additions and improvements as appeared to him appropriate and requisite. The chief addition is the article on Wine, in the two views taken of it, surely of great and general importance. In the first, the extensive and fraudful adulteration of foreign Wines, in too many instances attended with fatal effects, and even with gradual and destructive inroads on the human constitution, cannot fail to be matters of vital concern to the opulent classes, the universal and chief consumers of the continental wines. Such frauds are criminal and disgraceful to those who commit, and doubtless a proof of ill taste, and dangerous negligence, in those who tolerate them.

With regard to our home-made substitutes, the native wines, from their necessity and extensive use, they form a subject of undeniable consideration, as to the most perfect mode of their manufacture, to the end that they may, in the highest attainable degree, be qualified to perform the office of a beverage intended by nature, to make glad the heart of man.

The Author has exerted himself in the endeavour to attain the means of that important object; not merely from his own peculiar views and experience, which yet have not been altogether slight, but from the soundest scientific and experimental authorities,

out of the abundance which he possessed for selection.

In the graphic and ornamental portions of the Work, a department entrusted entirely to the Publishers, it will no doubt be found, as in the preceding Editions, that their efforts have afforded satisfaction to our numerous readers. New and original drawings from the life, and coloured after nature, have been made of the various breeds of Fowls, and animals, by Mr. Newton Fielding, an artist of known and acknowledged ability.

To conclude, it may be necessary to say a few words on that subject of divers hues, the BUSTARD, which we have hitherto treated after the example of our contemporaries, according to the ancient text, exhibiting it in the splendid character of the most delicate and exquisite of viands: but it seems, we have all failed hitherto, in stating the when, the where, or by whom, they were ever tasted or eaten; and the probability at length appears to be that, whenever introduced upon the board, like the Peacock, it was rather in the character of a table exhibition, than as an article of food. At any rate, modern usage and information appear to confirm this view, since no intelligence can be obtained of even the presence of this dish at the modern table, far less of any advocates for good living, who have ever tasted it; on the contrary, according to the improved version, the Bustard is rather a bird of prey than one, the flesh of which is adapted and calculated for use as human food. The Author will thankfully receive any hints for the improving a future Edition, if addressed to the Publishers, at No. 23, Paternoster Row.

August 20, 1834.

DOMESTIC POULTRY,

&c. &c.

SECTION I.

General View of the Various Species.

UNDER the term DOMESTIC POULTRY, in this country, are generally understood—the *Chicken*, or *Fowl*, *Turkey*, *Duck*, *Goose*, *Pea* and *Guinea Fowl*; to which, perhaps, may be added the *Swan*. The wild varieties of the above species, of the duck more especially, are objects of pursuit to the sportsman, and to those inhabitants of the sea coasts, and of the vicinities of lakes and rivers, where wild fowl are taken in decoys for market.

CUSTOMS.

IN Britain, where a greater quantity of butchers'-meat is consumed than probably in any other part of the world, poultry has ever been deemed a luxury, and consequently not reared in such considerable quantities as in France, Egypt, and some other countries, where it is used more as a necessary article of food, than as a delicacy for the sick, or a luxury for the table. In France, poultry forms an important part of the live stock of the farmer, and

it has been said of that country, the poultry yards supply a much greater quantity of food to the gentleman, the wealthy tradesman, and the substantial farmer, than the shambles do; and it is well known, that in Egypt, it has been from time immemorial a considerable branch of rural economy, to raise domestic poultry for sale, hatched in ovens by artificial heat. The warmer climates are far more favourable than ours for the purpose of raising poultry, and the same rule necessarily holds with respect to this country, where the warmest and dryest soils are best adapted to this production, more especially of the chicken and the turkey.

POPULAR OPINION.

It has been a general and popular topic of declamation, that in former and presumed happier times, our small farmers' wives raised a superior quantity of poultry to that which has been produced of late years; a position, at best, very questionable, since poultry has never yet risen in price beyond the proportion of other articles of food, and since the demand of the markets has been supplied in as full a measure as formerly. Suppose a heath or common, on which poultry has been customarily bred, is enclosed and improved into farms, is it not probable that, generally at least, as large a quantity of poultry is reared as upon the land in its former state of waste, and producing no corn, a food so absolutely necessary for that kind of stock? In fact, it is open to the observation of every one, that poultry has never been in this country a favourite or

prevailing article of diet with the lower or middling orders of the people; thence our farmers, whether little or great, could never be more profitably employed, whether for themselves or the community, than in the production of the more substantial articles of food: in the mean time, the demand for the luxury of poultry never fails to be satisfied to the utmost extent, and a decline of price in that article will be the natural consequence of a general decline in the meat market.

SECTION II.

Qualities of the Flesh of Poultry.

GALLINACEOUS FOWLS, or CHICKENS. In the opinion of physicians, both ancient and modern, the flesh of the chicken at three months old is the most delicate and easy to digest of all other animal food; thence best adapted to the stomachs of invalids, or the constitutionally weak, being the least alkalescent of all animal food, free from irritation, and affording a mild and innoxious chyle. Age makes a striking difference in the flesh of fowls, since, after the age of twelve months, it becomes tougher and more insoluble. The cock, indeed, at that age, is only used for making soup, whilst the pullet is still excellent, although a more substantial viand than the chicken. Whilst young, the cock and hen are equally delicate.

The CAPON, or castrated cock, has ever been esteemed one of the greatest delicacies, preserving the flavour and tenderness of the chicken, with the juicy maturity of age, the flesh yielding a rich and good chyle, and without any tendency to inflammation. Capons, however, are usually *crammed*, and made excessively fat, perhaps to the verge of disease, in which state their flesh is neither so delicately flavoured, nor probably so wholesome as when more naturally fed. Indeed, the flesh of the barn-door fowl, or that fed in a state of nature, and at liberty

to take exercise, is universally acknowledged to excel in genuine richness of flavour. There is probably greater variety of size, figure, and appearance in the chicken, than in any other species of fowl, and also considerable variety of quality, which will be pointed out under their different heads.

The Turkey.

The flesh of the turkey is somewhat more dense of fibre, and more alkalescent and substantial than that of the chicken, but it is reckoned nourishing and restorative. Age produces a similar effect as in the chicken, whence the turkey, after a certain period, is good for little, except stewed.

The true black NORFOLK turkey is esteemed superior to all others. The COPPER turkey, (see varieties) originally of the wild American breed, proved too tender, and degenerated in this country.

Guinea Fowls.

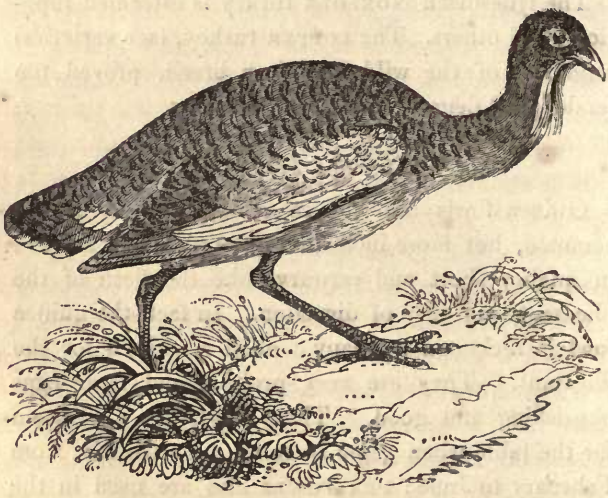
Guinea fowls are not so white of flesh as the common, but more inclined to the pheasant colour; in quality short and savoury, like the flesh of the pheasant, and easy of digestion. In fact, the guinea fowl is reckoned by many a good substitute for the pheasant. They are very prolific, and their eggs nourishing and good. These fowls are in season for the table when game is going out; namely, from February to June; PEA FOWLS also are used in the same season. With our immense powers of production, we are yet an importing country, to a vast extent, of the necessaries of life. A few years since,

upwards of the weight of twelve tons in turkeys and other poultry were imported from France within ten days.

The Peacock.

This bird, however, has long ceased to form a common dish for the table in this country, and probably, from its coarseness and ill colour, when it did, the motive was rather show than use ; but pea-hens and pea-chicks still retain their place at fashionable tables.

Bustards.



The Bustard is the largest land bird of Europe, the cock generally weighing from twenty-five to twenty-seven, the hen from eight or nine to twelve

or thirteen pounds. The neck a foot long, the legs a foot and a half. It flies with some little difficulty. The head and neck of the cock ash coloured; the back barred transversely with black and a bright rust colour. The greater quill feathers black, the belly white; the tail consisting of twenty feathers, marked with broad black bars; it has three thick toes before and none behind. There are upwards of half a dozen species of this bird, two or three of which (African) are crested. The LITTLE Bustard differs only in size, not being larger than a pheasant. They were known to the ancients in Africa, and in Greece and Syria; are supposed to live about fifteen years; are gregarious, and pair in spring, laying only two eggs, nearly of the size of a goose-egg, of a pale olive brown, marked with spots of a darker hue. They sit about five weeks, and the young ones run, like partridges, as soon as delivered from the shell. The cocks will fight until one is killed or falls; and I suppose they are fed upon the same food as the turkey.

There were formerly great flocks of bustards in this country, upon the wastes and in the woods, particularly in Norfolk, Cambridgeshire, and Dorset, and in various parts of Scotland, where they were hunted with greyhounds, and very easily taken. There is no present information of any bred in this country. The last specimen of the Great Bustard, recorded to have been killed in England, was shot in Cambridgeshire, in 1831, and passed into the private collection of a gentleman belonging to one of the colleges at Cambridge. Buffon, however, was mistaken

in his supposition that these birds are incapable of being propagated in the domestic state, chiefly on account of the difficulty of providing them with proper food, which, in their wild state, he describes to be heath-berries and large earth worms. Probably the HAW, or white-thorn berry might succeed equally well. Mr. Castang informed me a few years since, that a person in Norfolk had at that time some bustards: also, that he had the previous year an old bustard and four eggs, which he sold to Lord Stanley, and a pair of bustards to the Earl of Darnley.

Newgate is, probably, the only market for these fowls, where they generally obtain a high price, dead or alive, but merely, it would seem, as objects of curiosity. The few that do come to market, are either shot in the fens or on rivers near the sea coast, or are sent from France. Hungary is said to breed more bustards than any other country in Europe.

For the following information we are obliged to W. Yarrell, Esq., F.L.S. & F.Z.S. The Zoological Society have not hitherto exhibited any living specimen of the bustard, and some zealous friends to that institution have lately reported from Africa, that the bustards of that country, when in confinement, are so inveterately sulky, that their repeated attempts to preserve them alive, under restraint, have hitherto been unsuccessful.

The Capercalze, or Cock of the Wood.

This bird, indeed a wood grouse—like the bustard, was formerly somewhat numerous in Scotland and in the northern parts of England, but both species have

gradually disappeared from our country. The worth of the cock of the wood for the table, appears to be better established than that of the bustard, by the fact of the former being in far greater request at market, which, in season, is annually supplied from the countries on the Baltic. It is a fine, plump, full-breasted fowl, approaching the size of a middling turkey, variegated in colour elegantly with black, chestnut-brown, white, and shining dark green. The RED AND BLACK GROUSE still remain to us in certain parts of the country, and still retain the character of an exquisite delicacy for the table. A black cock will weigh three or four pounds and upwards. Though we yet possess at home a considerable supply of these fine birds, their number has been long in a gradual decrease, in proportion to the increase of cultivation, all the birds above referred to being naturally attached to wastes, woods, mountains, and uncultivated places.

THE AQUATIC SPECIES.

The Duck.

The flesh of the duck, of a savoury and somewhat stimulant nature, is said to afford a preferable nourishment to that of the goose, being not so gross, and more easily digested: and that of the wild duck is reckoned still more easy of digestion than the tame, although more savoury.

The Goose.

The whole anserine or goose tribe, of which there is a great variety, are held to afford a food highly

stimulant, of a strong flavour and viscous quality, and of a putrescent tendency. The flesh of the tame goose is more tender than that of the wild, but generally it is a diet best adapted to good stomachs and powerful digestion, and should be sparingly used by the sedentary and weak, or by persons subject to cutaneous diseases.

The fat, or grease, of the goose is more subtle, penetrating, and resolvent, than the lard of swine, and is an excellent article to be reserved for domestic use, in various cases. Sportsmen of the old school held the opinion, extraordinary as it may now seem, that when a kennel of hounds show symptoms of *rabies*, or madness, the best prophylactic remedy, is to keep a considerable flock of geese in it, for a length of time; and the late Dr. James, exceedingly attached to dogs, inclined to give a degree of credit to this presumed remedy, which, if real, must consist in the saline and penetrative qualities of the anserine excrement: the danger, however, of exposing the geese to the possibility of infection, ought certainly not to be overlooked.

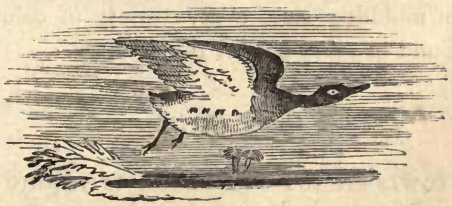
The Swan.

The Cygnet, or young swan, only, is reckoned eatable, and that after a peculiar preparation, although in old time the swan formed a dish of embellishment and show at great feasts. Swan fat possesses probably much the same qualities as that of the goose above described, but is supposed somewhat more mild and emollient. Many curative virtues were attributed by the ancients to the swan's

skin, but modern practice only sanctions its use as a defence against rheumatic affections; in fact, the only worth of the very few wild swans which reach a market, consists in their skins.

In December, 1831, in consequence of the dense fog which prevailed, a flock of swans came down the Thames from the direction of Richmond, passing the different bridges: two were taken at Bankside; five of the party sailed into St. Katharine's Dock, and were there captured; the eighth reached Limehouse, and was also made prisoner. The poor birds readily suffered themselves to be taken.

It is generally known to be felony, to steal swans that are private property. Could the following poetical anecdote by Mr. Hayley, to be found in "Daniel's Rural Sports," be taken as a fact, the swan would rival the goose in its affectionate attachment to human nature. Mr. Hayley, in a pleasing copy of verses, describes the swan as saving the life of an infant which had fallen into the water, by taking it upon its back, as it had been accustomed to do with its own children, and carrying it triumphantly between the walls of its uplifted wings, and restoring the precious boon to its at once distracted and delighted mother.



SECTION III.

GALLINACEOUS FOWLS.

Description and Management.

We have no history so ancient as the domestication of the common cock and hen. The cock was supposed to be of Persian origin, but the species has been since propagated and introduced into general use, throughout the whole world, from east to west, from the burning climate of India to the frozen zone. Although fowls used for the table are by nature granivorous, yet all the various species, the goose perhaps excepted, are carnivorous likewise, and great devourers of fish.

The principal VARIETIES in use, of the common species of FOWLS, are—DUNG-HILL FOWLS—GAME—DORKING—POLAND—BANTAM—CHITTAGONG, or MALAY—SHACKBAG—SPANISH, and their endless sub-varieties.

The common DUNG-HILL FOWL needs no description—of middling size, every variety of colour, and to be found in every part of the country.

Game Variety.

GAME FOWLS are too well known to require a particular description. Their plumage, particularly the

red, is most beautiful and rich; their size somewhat below the common, and their symmetry and delicacy of limbs to be compared with those of the race-horse and the deer, or, in more strict analogy, with the wild species of their own genus. The ancients kept game cocks for the same purpose as the moderns, and there is a game breed at present existing in India; but I have not hitherto obtained any information as to the origin of our game breed, which has been established during many centuries in this country. Their flesh is of the most beautiful white, and superior to that of all other breeds of domestic fowls, for richness and delicacy of flavour; but the extreme difficulty of rearing the chickens, from their natural pugnacity of disposition, which shows itself at the earliest possible period, deters most breeders, excepting those who breed for the cock-pit. I have many times had whole broods, scarcely feathered, stone-blind from fighting, to the very smallest individuals; the rival couples moping in corners, and renewing their battles on obtaining the first ray of light. On this account few can be reared, and as this disposition, to a certain degree, prevails in the half bred, it prevents crossing with the game cock, otherwise a great improvement. The game eggs are smaller than common, finely shaped, and extremely delicate.

Philanthropists are in the habit of declaiming much against the practice of cock-pit battles; but, on reflection, the cruelty of that sport will be found among the least wherein the feelings of animals are concerned, since fighting, in the game cock, is

a natural and irresistible passion, and can never take place against his will, and since those engaged in regular combat, upon the arena, would do so voluntarily, and with equal ardour, did they meet in the desert. Another and similar mistake is the supposed additional cruelty of arming the heels of the cock with steel, which, on the contrary, conduces to shorten the period of their sufferings. THROWING at cocks, indeed, is really a diabolical and contemptible act of barbarity, as are all other tortures which animals are *compelled* to undergo. Such are totally against the laws of reason, common sense, and common humanity, and sufficient to bring into disgrace and contempt the code of laws in which they are tolerated. The human being who can feel pleasurable sensations, on witnessing the agonized feelings, harassment, and affright, of even the meanest brute animal, deserves, in the first instance, supreme and pointed contempt; in the next, that is to say, after light imparted without effect, detestation and abhorrence.

An old German writer, of the name of Cranenstein, we are informed, gives the following account of the origin of our throwing at cocks on Shrove Tuesday. Whilst the Danes were masters of England, and lorded it over the natives, the inhabitants of a certain city, grown weary of slavery, had formed a secret conspiracy to murder their masters in one bloody night, when twelve men had undertaken to enter the town-hall by stratagem, and seizing the arms, to surprise the guard which kept it; at which time, their fellows, upon a signal given,

were to come out of their houses, and murder all opposers: but while they were putting this plan in execution, the unusual crowing and fluttering of the cocks, near the place which they attempted to enter, discovered and frustrated their design; upon which the Danes became so enraged, that they redoubled their cruelty, exercising still greater severity over the English. Soon after, however, the English being freed from the Danish yoke, they instituted the custom of throwing at cocks on Shrove Tuesday, the day of their disappointment, from a stupid and barbarian passion of revenge against the innocent cause of their misfortune, instead of admiring the natural vigilance of the birds, however unfortunately applied in a particular case: a reverse of the conduct of the Romans, who honoured the vigilance of geese which saved the Capitol. This infamous sport, although at first only practised in one city, in process of time became a national diversion, and remains even to this hour, in some parts of the country, exhibiting a strong taint of original ignorance and barbarism in the national character, which has not been even yet wiped out by legislation.

Every one has heard the horrible story of Ardesoif of Tottenham, who, in April, 1789, being disappointed by a famous game cock refusing to fight, was incited by his savage passion to roast the animal alive, whilst entertaining his friends. The company, alarmed by the dreadful shrieks of the victim, interfered, but were resisted by Ardesoif, who threatened death to any who should oppose

him; and in a storm of raging and vindictive delirium, and uttering the most horrid imprecations, he dropped down dead. I had hoped to find this one among the thousand fanatical lies which have been coined, on the insane expectation that truth can be advanced by the propagation of falsehood; but, to my sorrowful disappointment, on a late inquiry among the friends of the deceased miscreant, I found the truth of the horrible story but too probable.

VARIETIES.

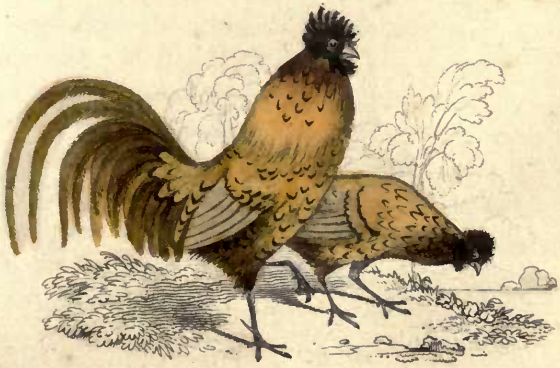
The Dorking.

This FOWL, so called from a town in Surrey, where probably the variety was first bred, and where, and in its vicinity, they are to be found in great plenty and perfection, is, in the third degree, the largest of our fowls, well-shaped, having a long capacious body and short legs, and is a plentiful layer. The genuine colour entire white: chief distinctive mark five claws upon each foot. The white is probably not so pure as that of certain of the dung-hill fowls, nor is the colour of the flesh, that inclining to a yellow, or ivory shade. The Dorking are the species generally made into capons.

In a late agricultural survey of the county of Sussex, an attempt is made to deprive Dorking of the honour of originating this famous variety of fowls, with what degree of success it would be a waste of time to inquire; it is sufficient that we

GAME FOWLS.

DORKING FOWLS.



POLAND FOWLS.

Published by Sherwood Gilbert & Piper, Jan'y 1842

possess such a variety, and to know where to obtain it in perfection. The surveyor pretends that the Dorking fowls are all raised in the Weald of Sussex, and that Horsham is the chief market for them. That their having five claws is by no means their true and original characteristic, such peculiarity being merely fortuitous, and, in fact, objectionable: and that those so marked are deemed a bastard breed. No doubt it is probable, that their five claws might have accidentally brought into notice certain fine and well-formed individuals, but from those proceeded a distinguished permanent variety, and that variety bearing the name of Dorking, seems a sufficient proof in favour of that town and its neighbourhood. In the mean time, the appellation of Dorking fowl has been in use, I apprehend, far beyond the memory of any one now living: and it is not at all improbable, the large Sussex breed has originated from a Dorking cross, the peculiar mark of five claws disappearing in the course of time, from the small number of Dorking cocks employed, compared with that of the Sussex, or common cocks, which were not so distinguished. Such is a common case in crossing varieties of live stock; the home variety in the end gets uppermost, as being the majority. In fine, five claws form an original distinction in the common cock and hen, adverted to by Buffon; nor is there any thing inconvenient or injurious in it, the fifth claw being seldom of sufficient magnitude to encumber the foot, or cause it to scratch out the eggs, as has been apprehended.

Poland.

The POLAND FOWLS, as they are generally called, were chiefly imported from Holland. Their colour shining black, with white tops on the head of both cock and hen. The head is flat, surmounted by a fleshy protuberance, out of which spring the crown feathers or top, white or black, with the fleshy King David's crown, consisting of four or five spikes. They are not so thickly covered with feathers as some other breeds, and still less so with down. Their form is plump and deep, and the legs of the best species not too long. Perhaps the genuine sort has always five claws, and as the Poland cock will produce occasionally white stock from white English hens, it is not improbable, the similarity of form likewise considered, that our famous Dorking breed may have been originally raised from that cross: or supposing such speculation groundless, the Dorking, differing as it does from the common, may have been an imported breed.

The Polanders are not only kept as ornamental, but they are one of the most useful varieties; particularly on account of the abundance of eggs they lay, being least inclined to sit of any other breed, whence they are sometimes called *everlasting layers*, and it is usual to set their eggs under other hens. They fatten as quickly as any breed, and are in quality similar to the Dorking; their flesh perhaps more juicy, and of a richer flavour. On recent inquiry, I understand that all the imported Polanders have

been uniformly black: thence it results that those of various colours are breeds crossed in this country.

Besides the Polanders, there is a small variety now imported from Holland, called EVERY-DAY-HENS, which are everlasting layers. The eggs of the everlasting layers, generally, are not so large as those of the common hens, nor equally substantial and nutritious. This seems an obvious consequence. From October 25th to the 25th of the following September, our five Poland hens laid 503 eggs, one of them only sitting within the time. An average egg weighed 1 ounce 5 drachms, exclusive of the shell, which in this breed is very thin; the above number making a total weight of 50¼ lbs. and a fraction.

The tops of these fowls should be periodically clipped near the eyes, or they grow into the eyes of the fowls and nearly blind them, rendering them very subject to alarm and to be driven away. This is particularly necessary in wet weather.

Bantam.

This well-known small breed, originally from India, is valued chiefly for its grotesque figure and delicate flesh.

There has been lately obtained a variety of Bantams, extremely small, and as smooth-legged as a game fowl. From their size and delicacy they are very convenient, as they may always stand in the place of chickens, when small ones are not otherwise to be had. They are a good substitute for partridges. They are also particularly useful for sitting upon

the eggs of partridges and pheasants, being good nurses, as well as good layers. Sir John Sebright, M. P. for Herts, is one of the chief amateurs of this breed. Sir John's breed are beautifully striped and variegated. I have been informed, that at present the Honourable Baronet is raising a breed of large fowls.

In addition, there is a South American variety, either from Brazil or Buenos Ayres, which will roost in trees. They are very beautiful, partridge spotted and streaked; the eggs small, and coloured like those of the pheasant; both the flesh and eggs are fine flavoured and delicate.

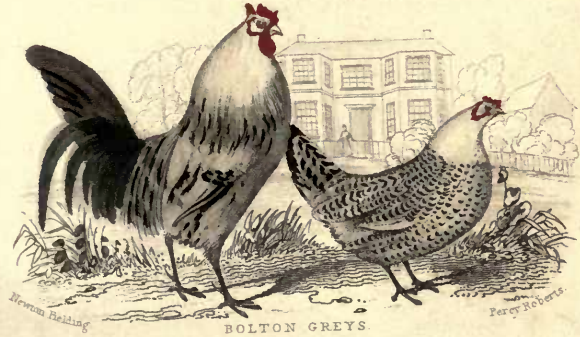
The Chittagong, or Malay.

This is another Indian variety, and is, as a contrast to the Bantam, probably the largest of the gallinaceous tribe. They are in colour, striated yellow and dark brown, long-necked, serpent-headed, and high upon the leg; their flesh dark, coarse, and chiefly adapted to soup. They are good layers, and being well fed, produce the largest of hens' eggs, and of the most substantial nutriment. Being too long legged, they are not, generally, steady sitters. Our portrait of the Malays was taken from the stock of Mrs. Wells, of Turnham Green; they are large birds, coarse meat, and not worth breeding from.

Buffon introduces several foreign varieties, of which I have no practical knowledge—the HAMBURGH COCK, the WONDERFUL INDIAN COCK, and the MUSCOVITE BLACK GAME HEN. I have heard of a WEST INDIA breed which are everlasting layers. The wonderful

BANTAM, OR PHEASANT FOWLS.

MALAYS.



Newton Fielding

Percy Roberts

BOLTON GREYS.

Published by Sherwood, Gilbert & Piper, Jany 1, 1842.

Indian cock is described as a bird of most beautiful plumage, consisting of the following five colours—black, white, green, red, and blue. The back part of the head has a sort of fleshy substance, of pyramidal figure, scaly, and of a blood-red colour: the bill thick and strong, and the breast mottled beautifully with red and green. The tail consists of twelve large flaming feathers, resembling those of a peacock. The comb upon the head is double, with a single wattle hanging beneath the lower mandible, an inch and a half long; the beak and legs yellow. It is a wild fowl, but easily domesticated. Nothing is said of the quality of its flesh.

Shackbags.

Formerly the largest variety, but in all probability it has been entirely worn out for some years. It was called the Duke of Leeds' breed, his Grace, more than fifty years since, being a great amateur breeder of them; but it does not appear whether his Grace first raised the variety, or whether it arose merely from improving the size of the common dung-hill kind, or from any foreign cross; but the former is the most probable conjecture, on account of the whiteness and fineness of the flesh, in the genuine shackbag. The only one I ever possessed was a red one, in 1784, weighing about ten pounds, which was provided for me at the price of one guinea, by Goff, the dealer, who then lived upon Holborn Hill, in London, and who, at the end of two years, received him back at half a guinea, having allowed me in the interim three shillings and sixpence each, for

such thorough-bred cock chickens as I chose to send him. At that period the real Duke of Leeds' breed had become very scarce, which induced the dealers to put Shackbag cocks to Malay hens, by that means keeping up the original standard size, but entirely ruining the colour and delicate flavour of the flesh. The Shackbag fowl was a convenient substitute for the turkey, to the frequent great convenience of poulterers and inn-keepers, at Wokingham and elsewhere.

The breed of Shackbags, it has been already observed, has been many years extinct, and the substitute of the Malay cross is not satisfactory. A large variety has been since introduced with success; a cross between the Spanish and our Dorking breed, the best of which are to be found in Sussex, and near Wokingham, Berkshire.

The Spaniard.

A large fowl, the plumage black, flesh white and delicate, but inferior in size to the old Duke of Leeds' breed. They are well adapted for CAPONS, and produce eggs nearly equal in size to those of the Malay hens. This breed is now common, particularly in London; all black, black legs, large red combs and gills—far too high on the leg, and in want of improvement in that particular.

In the Section on the Rabbit, I have adverted to the old and cruel practice in the country, of killing fowls, which I formerly noticed, in particular, at the house of a religious lady, whom, however, I failed to convince. She insisted on the necessity of the me-

thod, in order to drain off the blood, and insure the whiteness of the chicken! If the neck be broken by the finger and thumb, according to the practice of the London poulterers, the birds die instantly; at any rate, lose from the moment all sensibility of pain. My own method is to brace the wings, and taking hold of the head, to give them three or four turns, by which the neck is broken. They may then be hung up by the legs, and the blood will settle in the neck and head, for which an outlet may be made by an incision in the throat.

The Coral, or the Bolton Greys.

This variety, apparently the crack breed of their vicinity, but entirely unknown in the Metropolis, is described by the Rev. Mr. Ashworth, as follows— "Small sized, short in the leg and plump in the make. The colour of the genuine kind, invariably pure white in the whole lappel of the neck; the body white, thickly spotted with bright black, sometimes running into a grizzle, with one or more black bars at the extremity of the tail; they are chiefly esteemed as very constant layers, though their colour would mark them for good table fowl." Certain other breeds are described, but they do not appear to possess any title to distinction.

The author has to return his acknowledgments to the Rev. J. A. Ashworth, Vicar of Tamworth, near Bolton, Lancashire, for a very extensive communication on the various subjects of this little book, transmitted to the publisher; as also, for the living speci-

mens of the fowls, from which we have taken faithful portraits to accompany our present edition. The prevailing customary breeds of poultry in the above vicinity and district are named and described; but so far as my information extends, these provincial varieties of domestic poultry have been hitherto unknown at head-quarters, or in the grand emporium, London; and also in those districts where the most generally esteemed breeds have originated and are preserved. The superior breeding districts have invariably been few: in the mean time there have been peculiar varieties in most other parts which have seldom attracted notice elsewhere. It is obvious that mixed or chance-medley breeding must be most generally prevalent in poultry, as well as in all classes of the domestic animals. As to the merits of the Lancashire breeds, the Bolton greys seem to challenge distinction; and I should be happy to find myself the means of promoting their introduction to these parts.

It seems that the Dorking fowls have been introduced into Lancashire and Westmoreland from Cumberland; but that they do not there retain that high character which they have so long and generally possessed in other parts. Few breeds, however, I apprehend, have a title to boast of so high and long continued a reputation as the Dorking. Upwards of fifty-five years have passed, since, while resident in Surrey, I sent to Dorking for my first regular breeding stock: they were then the ancient and superior five-clawed breed of Surrey.

On the topic of hen-house conveniences, whereon it will be found I have dilated amply, this gentleman

observes:—"To prevent hens from roosting on the boxes, a slanting board may be leaned against the wall." It is a good precaution. Something of this kind is to be found in my description of the pigeon-house. Hens laying soft, or otherwise imperfect eggs, is an occurrence with which no poultry-keeper of any standing can be unacquainted. Over feeding, or too much soft meat, may be an occasional cause of this irregularity, but not a general one; since, in a lot of hens dieted with the utmost care, and regard to quantity of meat, one or two may have such a defect, the others yet being healthy and good layers. It has so happened, at various periods, in my poultry-yards. The recommended substitution of *dusting*, for *bathing* in the dust—humorous among other and notable hypercriticisms—excited a smile, on provincialisms, *non est disputandum*: and the expressive figurative phrase of *bathing* in the dust was in vogue and current long before I was either. Moreover, the celebrated Gervase Markham, who wrote in the days of Elizabeth and James, makes use of this very appropriate figure whilst quoting a still older writer.

As to specific quantities of food allowed, I trust I shall not be found deficient. The phrase of a *small quantity* of hay allowed to a cow must indicate a few pounds. It is a case in which precision is not to be expected, from the various circumstances of size, season, the nature of the other food allowed, and the means of the proprietor. On the shedding of horns in cattle, I shall speak in its proper place.

The age of turkeys is indicated by the scales on

the legs, which, in the young, are soft and smooth, in the old rough and rigid. To conciliate this digression, the reverend gentleman is a true amateur of great skill and intelligence in the species of live stock which he has taken under his protection, and he has done me the honour to pay a distinguished attention to my book.

SECTION IV.

On breeding and rearing Chickens—the necessary Yards and Buildings.

It has been already observed, that the warmest and dryest soils are best adapted to the breeding and rearing of gallinaceous fowls, more particularly chickens: thence the greatest success, attended with the least trouble, may be expected on such, and far greater precaution and expense will be required on those of an opposite description. Of these last, the wet and boggy are the most injurious, since, however ill affected fowls are by cold, they endure it still better than moisture; whence they are found to succeed well upon dry land, even in the severe climates of the north. The counties of England most productive in poultry, are Norfolk, Surrey, Sussex, Herts, Devon, and Somersetshire. The largest stock of poultry which I ever saw upon an English farm, was upon one of two or three hundred acres in Herts, many years since, amounting it appeared to many hundred head. It was dry and shingly land, like the sea beach, and I found on inquiry, that scarcely any care was taken of the breeding stock, or shelter afforded them, yet they multiplied in a most extraordinary degree, and preserved a constant state of good health. Upon a boggy or clayey soil, under

such circumstances, they would have died like rotten sheep. In short, land proper for sheep is generally also adapted to the successful keeping of poultry and rabbits.

But as the rearing of both is necessary, upon soils and in situations of every description, it will be most to the purpose to point out those precautions which must be recurred to, in order to ensure success upon the least favourable. Of such, then, artificial, or made ground, cannot be dispensed with for a poultry-yard, where rearing is made an object upon any considerable scale; since upon damp and boggy soils, not only will the greater part of the broods be annually subject to disease and mortality, but the cocks and hens themselves will be frequently affected, to the great impediment of the business of the breeding season. Where it is not held worth while to make any extraordinary accommodations for poultry, and the risk taken, enough may yet be preserved for family convenience and to repay the trifling expence. But no considerable stock can be kept, far less any profit made upon it, upon an unfavourable soil, independently of attention to needful local conveniences.

Whether or not the poultry be suffered to range at large, and particularly to take the benefit of the farm-yard, a separate and well-fenced yard or court must be pitched upon. The foundation should be laid with chalk, or bricklayers' rubbish, the surface to consist of sandy gravel, considerable plots of it being sown with common trefoil, or wild clover, with a mixture of burnet, spurry, or star-grass,

which last two species are particularly salubrious to poultry. The surface must be so sloped and drained as to avoid all stagnant moisture, most destructive to young chickens. The fences must be lofty, well secured at the bottom, that the smallest chicken cannot find a passage through, and the whole yard perfectly sheltered, from the north-west to the south-east. Various beds, or heaps of sifted ashes, or very dry sand, should be always ready, in which the hens may exercise that propensity, so delightful and salutary to them, of rolling or bathing themselves. This is effectual in cleansing their feathers and skin from vermin and impurities, promotes the cuticular excretion, and is materially instrumental in preserving their health.

The poultry-houses within the court, if there be a choice, should have a southern aspect, at any rate should be well defended from cold winds and the blowing in of rain or sleet. If the number of the stock be considerable, the houses had far better be small and detached, both for health and safety sake, and especially they should be absolutely impenetrable to vermin of every description. Should these houses abut upon a stable, brew-house, or any conductor of warmth, it will be so much the more comfortable and salutary to the poultry.

The form and conveniences of the poultry-houses are these—the bottom or floor should consist of well-rammed chalk or earth, similar to the court-yard, that its surface being smooth, may present no impediment to being swept perfectly clean. For health's sake, the roof should be lofty; the perches will be

then more out of the reach of vermin, should any accidentally break in: and there should be only one long and level range of perches, because when these are placed one above another, the fowls dung upon each other: convenient steps driven into the walls, will render easy the ascent of the poultry to their perches; but care must be taken that the mistake be not made of placing these steps immediately one over the other, but in such wise, that they can jump from one to the other.

Boxes, of which every carpenter knows the form, are to be arranged round the walls, and it is proper to have a sufficient number, the hens being apt to dispute possession, and sit one upon another; the steps will lead equally to these as to the perches. The board, or step at the entrance, to be of sufficient height to prevent the eggs from rolling out. Provision of a few railed doors may be made, for occasional use, to be hung before the entrance, in order to prevent other hens from intruding to lay their eggs upon those which sit, a habit to which some are much addicted, and by which a brood is often injured. The common deep square boxes, uncovered at top, are extremely improper, because that form obliges the hen to jump down upon her eggs; whereas for safety she should descend upon them from a very small height, or in a manner walk in upon them. The same objection lies against hampers, with the additional one of the wicker-work admitting the cold, in variable weather, in winter or early spring sittings. Some breeders prefer to have all their nests upon the ground, on account of the danger

of chickens falling from those which are placed above. In this respect, persons will be best guided by their own experience.

Turkeys, being roosting fowls, may be kept in the yard of which we speak, either in a separate house, or their boxes for laying or sitting may be placed on the ground of the common houses; which last method, perhaps, is objectionable, since turkeys and common fowls might not roost quietly together. In the common way, indeed, poultry of all kinds are associated in a common house, the cocks and hens aloft, and the ducks, geese, and turkeys upon the ground-floor. Or, upon an extensive scale, all the domestic poultry may be contained within the inclosure, the circular form for which would be most comprehensive and advantageous, including a piece of water, with laying-houses upon its banks, for the aquatic fowls, and dove-cotes for breeding pigeons. Some shutters may open to the morning sun, for air, and particularly for the benefit of the sitting hens.

Precautions.

All the above arrangements, the best concerted plan, and the most valuable stock, will little avail the proprietor, or rather turn to his great mortification and disappointment, without a certain precaution, of more consequence than all others—a defence against MIDNIGHT THIEVES. Not merely a lock, or a bar, or a mere trifling apology for security, but such an ample safeguard, that a man who values his pro-

perty may lay his head upon his pillow with confidence. I speak feelingly on this part of the subject, having three or four times in my life been robbed, in a single night, of the greater part of a most valuable stock of poultry, the breed and excellence of which it took me several seasons to recover. In the first place, these small buildings should be made substantial, for on one occasion, my locks being good, the thieves made their way by wrenching open an angle of the building. In addition to substantial locks and hinges, bells hung upon the inside of the doors, or upon any part liable to be shaken, are good precautions, since the noise may deter the thieves, even if it fail to alarm the family. But the most certain security is that kind of vermin cur generally kept by country labourers. Several such should be enkennelled in the poultry court, and taught to bark, being equally useful against robbers and vermin. Nothing can charm and quiet the tongues of real good *latratores*, or barkers, and more particularly when several of them are together.

A plan like the above will obviously require the exclusive services of one or more ATTENDANTS, according to its extent. My poultry, rabbits, and bees, formerly were well attended by an aged labourer, with the occasional assistance of his wife; and the meritorious couple thus made an easy and comfortable living after a life of severe labour, a circumstance to me the source of heartfelt satisfaction. The sale of our surplus of this species of live stock, besides repaying all expences, and exclusive of a most abundant and comfortable supply for the household and for occasional presents, rendered an annual profit by no means

contemptible. We disposed of the surplus, for the greater part, to a higgler in the vicinity, who allowed us a certain advance upon his common price, in consideration of the superior goodness and condition of the stock.

SECTION V.

Choice and Treatment of Breeding Stock.

GALLINACEOUS FOWLS. By a reference to the THIRD Section, (p. 12.) which describes the qualities of each variety of this species, a choice may be made of the most suitable to the situation or fancy of the proposed breeder. A breeding stock, of the common kind, is easily procurable, either in town or country, from the markets or individuals: particular and fancy breeds must either be sought in those parts where they are customarily bred, or at the shops of the London dealers.

It should be a general rule to breed from YOUNG STOCK: a two year old cock, or stag, and pullets in their second year. Pullets in their first year, if early birds, will indeed, probably, lay as many eggs as ever after, but the eggs are small, and such young hens are unsteady sitters. Hens are in their prime at three years of age, and decline after five, whence, generally, it is not advantageous to keep them beyond that period, with the exception of those of capital qualifications. Hens with a large comb, or which crow like the cock, are generally deemed inferior; but I have had hens with large rose combs, and also crowers, which were upon an equality with the rest of the stock. Yellow-legged fowls are often of a tender constitution, and always inferior in the quality of their

flesh, which is of a loose flabby texture and ordinary flavour.

The HEALTH of fowls is observable in the fresh and florid colour of the comb, and the brightness and dryness of the eyes, the nostrils being free from any discharge, and the plumage of a healthy gloss. The most useful cock is generally a bold, active, and savage bird, cruel and destructive to his hens, in his fits of passion, if not well watched, and even to his own offspring. Hens above the common size of their respective varieties, are by no means preferable either as layers or sitters. The indications of OLD AGE are paleness of the comb and gills, dullness of colour, a sort of stiffness in the down and feathers, length and size of talons, and the scales upon the legs becoming large and prominent.

The NUMBER of hens to one cock, four to six, the latter being the extreme number, with a view of making the utmost advantage. Ten and even twelve hens have been formerly allowed to one cock, but the produce of eggs and chickens under such an arrangement will seldom equal that to be obtained from the smaller number of hens. Every one is aware that the spring is the best season to commence breeding with poultry, and, in truth, it scarcely matters how early, presupposing the best food, accommodation, and attendance, under which, hens may be permitted to sit in January; but the attempt to rear winter chickens in this climate, even in a carpeted room and with a constant fire, would, in all probability, be found abortive. I have repeatedly made the experiment with some scores, without being able to preserve an individual through

the winter, and nearly the same has resulted with respect to pigs, on a damp clayey or marshy soil. This I request should be understood with some grains of allowance in respect to the soils on which my stock of both kinds was reared, in three counties. They were clayey, wet, and benumbing, and my neighbours were in a similar predicament with myself. It is a mere statement of facts. I have referred in the sequel to those dry soils, better adapted to breeding of poultry, as they are also to breeding and keeping of sheep. I give merely my own actual experience, without doubting, that many breeders more fortunately situated, have succeeded with winter stock, though, in the best situations, winter may bring with it considerable risk. A record, however, of the experimented fact may remain, as a caution to breeders upon unfavourable soils. The following is a remarkable instance of attention and success in winter breeding.

The late Mrs. Adams, of Ditchford Farm, near Shipton on Stour, in Worcestershire, for many years devoted her time and attention to the breeding and rearing of winter chickens and spring ducklings, with which she constantly attended Campden and Shipton markets, where her poultry was sought by the neighbouring gentry with avidity, and generally fetched good prices; the superiority of this good woman's poultry was proverbial: as a breeder and feeder, she stood pre-eminent; her chickens were always ready for the table by new year's day, and her ducks were earlier in the market than those of any other person in that neighbourhood. This is given, not as a novelty, but

as an example of merit and successful perseverance. In the vicinity of most cities and large towns, chicks and ducklings are reared in the autumn, for the Christmas market. The business is done by the aid of artificial heat, by stoving, and with covered floors.

The conduct of the cock towards his hens should be early and constantly attended to, as it is a common occurrence for him to conceive an antipathy to one or more particular individuals; should this continue, the obnoxious one should be removed, since nothing but misery can ensue to the unhappy and persecuted bird, which will be harassed and chased about, and, unless when hiding and moping in corners, will be always liable to be torn and maimed; and various examples have occurred of a hen, under these circumstances, being instantly struck dead by the cock. Such a hen being removed, and replaced by a STRANGER, care should be taken for the first week or two, that she be not worried or injured by the other hens.

A place of REFUGE should be provided for hens or chicks in this unfortunate predicament. Whilst the young feathers are growing after moulting, poultry are extremely apt to peck and wound each other, retarding their recovery.

The CHANGE of a cock, from death or accident, is always attended with interruption and delay, as it may be some considerable time before the hens will associate kindly with their new partner: and, further, a new cock may prove dull and inactive from the change, however good in nature. This frequently happens with cocks of the superior breeds, purchased from the London dealers, in whose coops they have been kept

in such a high state of temperature, that they are unable to endure the open air of the country, unless in the summer season. Such being removed in autumn, winter, or early spring, if immediately turned abroad with hens, are liable to become *aguish*, torpid, and totally useless, perhaps, in the end, turning roopy or glandered. The only method of safety in this case, is to keep such a cock in the house, upon the best and most nourishing food, turning the hens to him several times in the day, and permitting him to be abroad an hour or so, the weather being fine, until in a few weeks he shall be accustomed to the air.

In making the NESTS, short and soft straw is to be preferred, because the straw being long, the hen, on leaving her nest, will be liable to draw it out with her claws, and with it the eggs. The hen, it is ascertained, will breed and lay eggs without the company of a cock; of course such eggs are barren. I confined a hen with a pheasant cock, which was never observed to attend her; she laid twenty-nine eggs, all which proved barren. It may be said, that she had previously associated with a cock, but that the attentions of one were also subsequently necessary to render the eggs perfect and prolific; such fact, nevertheless, does not negative the other, of a hen's breeding eggs entirely independent of the male, as is confirmed by the circumstance of parrots, and other birds in cages, laying eggs without the possibility of a cock approaching them. According to Buffon, a hen being properly attended by the cock for a few days, should she then be separated from him, the eggs laid by her during a month thereafter would be fruitful.

EGGS for SITTING should be kept in bran and in a cool place, never exceeding the age of a month, the newer to be preferred, as nearly of a size as possible, and of the full middle size; void of the circular flaw, which indicates the double yolk, generally unproductive, nor should there be any roughness or cracks in the shells. NUMBER of eggs, according to the size of the hen, from nine to fifteen, an odd number being preferable, on the supposition of their lying more close. The eggs to be marked with a pen and ink, and examined when the hen leaves her nest, in order to detect any fresh ones which she may have laid, and which should be immediately taken from her, as they, if at all, would be hatched too late for the brood. It is taken for granted, the box and nest have been made perfectly clean for the reception of the hen, and that a new nest has not been sluggishly or sluttishly thrown upon an old one, from the filth of which vermin are propagated, to the great annoyance of the hen, and prevention of her steady sitting.

EGGS BROKEN in the nest, should be cleared away the instant of discovery, and those remaining washed with warm water, and quickly replaced, lest they adhere to the hen, and be drawn out of the nest: if necessary, the hen's feathers may also be washed, but always with warm water.

With respect to the CAPRICIOUSNESS of some hens in the article of SITTING, it is a risk which must be left to the judgment of the attendant, who has to determine whether or not the hen which appears desirous of sitting, may be safely trusted with eggs.

Leaving a number of eggs in the nest is an enticement. Very frequently a hen will cluck, and appear hot for incubation, yet, after sitting over her eggs a sufficient number of hours to addle them, will then desert them: and, probably, in the course of a few days, will be taken with another fit of incubation.

Much useless cruelty is too often exercised, to PREVENT the hen from SITTING, when eggs, rather than chickens, are in request; such, for example, as immersing her head, or whole body in water, which I have witnessed with regret, the hen, as soon as dry, running to her nest, although the dipping has been repeated several days following. But, granting nature could be thus put out of her course, it is not probable that eggs would be obtained earlier than by suffering the hen to sit, since the improper treatment, and the disappointment combined, are nearly an equal impediment both to laying and sitting.

I am sorry to see a late useful and well-written publication disgraced by barbarities similar to those above described. The author, unreflectingly without doubt, recommends to thrust a feather through the hen's nostrils, in order to prevent her from sitting; and to give her half a glass of gin, then swing her round until seemingly dead, and confine her in a pot, during a day or two, leaving her only a small breathing hole, to force her to sit! It is full time that these and a hundred other such utterly useless and barbarous follies of former days, practised upon various animals, should be dismissed with the contempt they merit. The pamphlet alluded to, is The Epi-

cure, by Thomas Young, a publication replete with good things, on the interesting subjects of eating, wines, spirits, beer, cider, planting, &c. It is written with *haut goût*.

Every succeeding year after the third, the hen continues to MOULT later in the season, and laying fewer or no eggs during the moulting period, which is sometimes protracted to two or three months. It should seem that old hens are seldom to be depended upon for eggs in the winter, such being scarcely full of feather until Christmas; and then, probably, may not begin to lay till April, producing at last not more than twenty or thirty eggs. In general, it is most profitable to dispose of hens whilst they are yet eatable, or saleable for that purpose, which is in the spring of the third year. Nor do delicate white hens lay so many eggs in the cold season, as the more hardy coloured varieties, the former requiring warmth and shelter, particularly by night. MOULTING, or the casting and renewal of feathers, lasts, with its effects, from one to three months, according to the age and strength of the bird. Whilst under this natural course, poultry are unfit for the table, as well as for breeding. It is the same with respect to young poultry, whilst shedding their feathers in the spring. The regular moulting of full-grown fowls begins in the autumn.

Attention during Incubation.

There is this DISTINCTION in the hen: in some, the desire of sitting or incubation is predominant, which they will repeat to the fifth or sixth time in

the year, to their emaciation or almost destruction: in others, the desire is so slight, that they will probably sit but twice, or even once in the season, and then not steadily. It is for the skilful breeder to take advantage of this variation of quality, the one kind furnishing plenty of eggs for the other to sit upon.

It is proper to place CORN and WATER beside the sitting hen, whenever it may appear necessary, withdrawing them as soon as she is satisfied, not only to encourage steadiness of incubation, but to support the constitutions of those, in which the natural excitement is so powerful, that they will remain several successive days upon the nest, at the risk of famishing. I have had instances of hens of this description fainting outright, and appearing as dead, on their final leaving the nest with the chickens, in a state of total emaciation, having, probably, not eaten or drank more than once in three or four days, during the TERM of their incubation, TWENTY-ONE DAYS. The plan of feeding on the nest should be invariably pursued with all frequent sitters.

In a Memoir read to the Académie Royale des Sciences at Paris, by M. Tessier, it is stated that several TURKEYS having sat on the eggs of hens, the duration of the sitting was from seventeen to twenty-seven days; the same on ducks' eggs, twenty-seven days; the same on turkeys' eggs, from twenty-six to twenty-nine.

HENS sat on ducks' eggs, from twenty-six to thirty-four days; on those of their own species, from nineteen to twenty-four days.

In DUCKS the duration of sitting was from twenty-eight to thirty-two days.

Common GEESE from twenty-nine to thirty-three days.

PIGEONS from seventeen to twenty days.

There is occasionally a deception in this case. Some hens sit unsteadily, or rather stand over their eggs, during the first four or five days, leading ultimately to the supposition that they have sate some days beyond the usual period.

SECTION VI.

Hatching of the Brood.

THIS must be watched on the expiration of the term, in which the state of the weather, warm or cold, may make some hours difference. Nature, as Reaumur long since observed, has committed to the chicken itself the task of breaking its way through the shell, the hen being totally uninstructed and unqualified on that point; for, indeed, any forcible strokes with her beak might have the effect of wounding the chicken, whilst it broke the shell. The only use of her bill, generally, in this case, is to turn, or remove the eggs, defend them, or cast out the broken shells. The chicken in perfect health and unimpeded, suddenly, at Nature's impulse, performs the part of breaking its prison with wonderful strength and energy, indicative of future activity, considering the quiescent state, rolled up like a ball, in which it has laid from the time of its form being complete.

ITS FORM AND POSITION IN THE SHELL.—The neck curves or slopes toward the belly, on about the middle of which the head is placed; the bill under the right wing, like a bird asleep; the feet are gathered up beneath the belly, like those of fowls trussed for the spit; the claws reversed, almost touch the head from their convexity. The fore-part of the chicken is generally placed towards the biggest end of the egg, adapted by nature to that purpose: the whole body is

surrounded by a membrane of considerable strength and thickness, confining it in a position apparently the most unfavourable to the motions necessary to its emancipation: nevertheless, without changing its attitude, the chick performs this seemingly most difficult task; repeated strokes with its little bill, which may often be heard, break the shell of the egg, at the same time tearing the solid membrane in which it is enveloped, and which resists its struggles full as much as the hard but brittle shell.

Nor is the head at all at liberty, or released from the wing, during the struggle; the comparison in that respect with a sleeping bird not coming up fully to the point, since the head of the chicken in the egg reaches farther under the wing, and the bill protrudes towards the back. The head, although in this confined state, by moving alternately backward and forward, and the reverse, or more exactly from the belly towards the back, and from the back towards the belly, reaches and strikes the shell, more or less roughly, according to the quickness of its motion: whilst in action it is in some degree guided by the wing and the body, which retain and prevent it from leaving its place. The head is very heavy and large, with respect to the bulk of the body, making together with the neck a weight so considerable, that the chicken is unable to support it for some time after its birth. On the other hand, the manner in which all the parts are disposed, whilst yet in the egg, and in the form of a ball, renders the support of that weight of the neck and head perfectly easy to the chicken; for in whatever position

the egg may be, the head of the chicken is supported either by the body or by the wing, or by both united: in fine, the force of the blows against the shell by the beak, is powerful in proportion to the bulk of the head. The mother's affection for her brood is always observed to be intensely increased, when she first hears the voice of the chicks, through the shells, and the strokes of their little bills against them.

As to the foregoing topic, form and position of the chick in the shell, we made our observations thereon, *De Reaumur's* book in hand, during our experiments in Surrey, whilst hatching with artificial heat. For further instructions on this subject, a scientific and curious one, those readers who require it, are referred to a most ingenious Essay of William Yarrell, Esq., in the Zoological Journal, No. 8, Jan. 1826. Zoologists are also obliged to the same learned gentleman for notice of the Caueseme, a species of duck, new to the British Fauna, p. 492, sq. "A male of this beautiful species was shot near Boston, while feeding on fresh water, in company with some widgeons, and sent to the London market, on the 21st January, from whence it was purchased for preservation. Though a well known European species, it has not hitherto been recorded to have been killed in England; as new, therefore, to the catalogue of British ducks, a short description may be acceptable:"—to which the reader is referred.

All chickens do not dispatch the important task in equal time. Some are able to disencumber themselves of the shell, in the course of an hour from the commencement of the operation; others take two or

three hours; and generally it may be looked upon as half a day's work: in case of natural or accidental debility, the period may be extended to twenty-four or even forty-eight hours, in which case, however, there is seldom much success in the hatching. Here skilful assistance is wanted from the attendant, which very few possess. Reaumur (the greater part of whose observations, such I mean as I have found leisure to attend to, appear to me correct) says, the women of most countries in his time (1747) were in the habit of dipping the eggs in warm water, and suffering them to remain in it a short time, on the day of hatching, from the presumption of rendering the shell more tender and easy to be penetrated by the bills of the chickens. This, however, is a useless, perhaps injurious labour, since the shell of a boiled egg does not prove sensibly less hard; and, granting it did, would soon reassume its primitive hardness, from exposure to the air and evaporation.

Assistance in Hatching

Must not be attempted prematurely, and thence unnecessarily, but only in the case of the chick being plainly unable to extricate itself: so, indeed, an addition may probably be made to the brood, as great numbers are always lost in this way. The chick makes a circular fracture at the big end of the egg, and a section of about one-third of the length of the shell being separated, delivers the prisoner, provided there be no obstruction from adhesion of the body to the membrane which lines the shell. Between the body of the chicken and the membrane there remains a viscous fluid, the white of the egg thickened by the intense

heat of incubation, until it becomes a real glue. When this happens, the feathers stick fast to the shell, and the chick remains confined, and must perish unless released.

The METHOD of assistance is, to take the egg in hand, and dipping the finger, or a piece of linen, in warm water, apply it to the fastened parts, until they are loosened, by the gluey substance being dissolved and separated from the feathers; the chick then being returned to the nest, will extricate itself, a mode generally to be observed, since violence used would often be fatal. Nevertheless, breaking the shell may sometimes be necessary, and tearing with the fingers, as gently as may be, the membrane from the feathers, which are still to be moistened as above, to facilitate the operation. Small points of scissors may be useful, and when there is much resistance, and apparent pain to the bird, the process must be conducted in the gentlest manner, and the shell separated into a number of small pieces. The SIGNS of a need of assistance are, the egg being partly pecked, and the efforts of the chicken discontinued for five or six hours. In commencement, the shell may be broken cautiously, by striking it with the end of a key; the rotten egg is known immediately by the motion of the contained fluid, and previous unsteady incubation.

WEAKNESS from cold may disable the chicken from commencing the operation of pecking the shell, which must then be artificially performed, with a circular fracture, such as is made by the bird itself. Pullets are occasionally liable to cause this defect. We have had but little success in this case, the chickens after delivery

seldom succeeding; but the following quotation from De Reaumur will be fully explanatory.

"This assistance, which is so important to many chickens, might prove fatal to others; for which reason I would advise the reader not to attempt it in too great a hurry. My opinion is, the facility of coming out of their shells ought not to be procured to any but those which have been nearly four and twenty hours together without getting forward in their work. There are chickens, as I have already observed, which show too great an impatience to peck their shells, and do it before the yolk is entirely got into their body: it would prove fatal to those, were they enabled to come out of their shell a few hours after they have pecked it, although they would be never the worse for it afterwards, IF NO YOLK WERE LEFT OUT OF THEIR *body*, at the instant of their coming out of the shell. However, it is generally better to let the chicken come out of the shell of its own accord: for in that case, he is hatched only when his limbs have become sufficiently strong, and when they have assumed in the shell a consistence and vigour, which they would not be so sure to acquire, if they were exposed to the open air.

"I have often found, both among the chickens which were hatched of their own accord, and those which I have assisted, some that, notwithstanding the perfect consolidation of the place through which the yolk had been introduced into their body, had nevertheless still without it portions of intestines, some longer, some shorter: one might think that these portions had not been inclosed in the capacity

of the belly at the same time when the rest was; but it is no less probable that all this is the consequence of the efforts the chicken had made towards being hatched, and that they had brought on him a rupture, which is commonly fatal in a few days."

The chickens FIRST HATCHED are to be taken from the hen, lest she be tempted to leave her task unfinished. Those removed may be secured in a basket of wool or soft hay, and kept in a moderate heat; if the weather be cold, near the fire. They will require no food for many hours, even four and twenty, should it be necessary to keep them so long from the hen. The whole brood being hatched, the hen is to be placed under a coop abroad, upon a dry spot, and, if possible, not within the reach of another hen, since the chickens will mix, and the hens are apt to maim or destroy those which do not belong to them. Nor should they be placed near numbers of young fowls, which are likely to crush young chicks under their feet, being always eager for the chickens' meat.

The FIRST FOOD, split grits, afterwards tail wheat; all watery food, soaked bread or potatoes, improper. Eggs boiled hard, or curd chopped small, much approved as first food. Their water should be pure and often renewed, and there are convenient pans made in such forms, that the chickens may drink without getting into the water, which often, by wetting their feet and feathers, benumbs and injures them; a basin whelmed in the middle of a pan of water, will answer the end, the water running round it. Generally, and dependent on situation, and the dis-

position of the hen, there is no necessity for cooping the brood beyond two or three days, but they may be confined as occasion requires, or suffered to range, as they are much benefited by the scratching and foraging of the hen. They must not be let out too early in the morning, or whilst the dew remains upon the ground, far less be suffered to range over the wet grass, one common and fatal cause of disease. Another caution is of the utmost consequence, to guard them watchfully against sudden unfavourable changes in the weather, more particularly if attended with rain. Nearly all the diseases of gallinaceous fowls arise from cold moisture.

For the period of the chickens QUITTING the hen, there is no general rule; the most certain is, when the hen begins to roost, leaving them; if sufficiently forward, they will follow her; if otherwise, they should be secured in a proper place, the time having arrived when they are to associate with the young poultry, as nearly of their own age and size as possible, since the larger are apt to overrun and drive from their food the younger broods.

The incision necessary to be made in the distended and obstructed crop of a chicken pining and refusing its food, we practised with success—in the similar case of a hen, and of squabs or young pigeons. Such incisions being made, and afterwards stitched up with a needle and thread as carefully as possible, the parts soon unite.

SECTION VII.

Hatching by Artificial Heat.

THE EGYPTIAN mode of HATCHING EGGS having been detailed in the former edition, and there being little probability of its being resorted to in this country, only one person but myself, so far as I am informed, having attempted it, I have been induced to omit the detail, confining myself to the brief recital of my own experiment, as a matter of curiosity. And this omission I have made with the less reluctance, as the celebrated *Cuvier*, in his Animal Kingdom, recently translated, has given the whole detail of the Egyptian method, from the same source whence I had previously extracted it. It is impossible however to decide that the artificial practice may not yet revive, as population increases. Even the gas was, at first, strongly ridiculed and scouted.

In the year 1782, whilst resident in Surrey, *Reaumur's* book first fell into my hands. I had often heard of such a treatise, and being then much attached to breeding poultry, I had a strong desire to make trial of the Egyptian mode of hatching the eggs. I had, in fact, already commenced, and our endeavours were stimulated and amply assisted by the presence of such a guide. We were, however, soon satisfied by a trial upon a very small scale, and can in a few words explain to the reader, both our process, and the reason for its discontinuance.

There are TWO MODES of HEATING the EGGS; through the means of fire, or stable-dung: we made choice of the former. A number of eggs wrapped in wool, and covered with flannel, in a common wicker-bottom sieve or riddle, were suspended over a chaffing-dish of charcoal, in a chimney where was no other fire. The chimney-skreen was constantly keep fast, in order to concentrate the heat. It was a small chimney, into the funnel of which the wind did not set with any force, at least at that time, and the heat was well retained as in a stove. We had no thermometer, but measured the degree of heat merely by our own feeling, and as we could judge it to correspond with the natural heat imparted by the body of the hen during incubation. *Reaumur* determined the proper degree of heat to be thirty-two degrees by his thermometer, about one hundred of thât of *Fahrenheit.* Constant attendance, at least every three or four hours, must obviously be necessary, both night and day, to preserve an equality of heat to both sides of the eggs, of which there was only one layer filling the bottom of the sieve, to the number of forty odd. This was effected by turning the eggs, giving each side the equal chance of nearness to the fire, which must be constantly kept to a moderate and equable heat. We made use of all fine and new-laid eggs, but in our first attempt we lost a number, which however were not rotten, but had evidently bred chickens, that perished from an imperfect disposition of the heat. They were most probably of the eggs placed in the circumference, where the heat might be defective,

and which we afterwards had the precaution to change to the centre, where the heat was greatest. Or, with equal probability, the heat might be sometimes too great in the centre, and occasion instant destruction to the nascent being in the shell. As the chickens advance in growth, the covering of flannel should be made lighter, and on the expectation of hatching, it must be reduced to a very thin covering, that nothing may press upon the eggs to impede the efforts of the chickens. We obtained between thirty and forty chickens, from about forty-five eggs, all in good health, two excepted, which being weak, required assistance to be released, and survived only a day or two.

The brood placed in a basket of soft hay, and covered with flannel, were committed to the same chimney, the charcoal still burning. This was continued a day or two, and the degree of heat considerably reduced, until feeding was required. Making a noise with the finger-nails against a board, upon which the chicks were placed, in imitation of the pecking of the hen mother, first taught them to peck at their meat, and they from natural instinct followed the noise readily and eagerly. They were soon taught to drink also, but with some difficulty to prevent them, in their eagerness, from wetting their feet and plumage. It should be here observed, that we had set three hens on the same day we commenced the process by artificial heat, and one of these producing a small number of chicks, we contrived to deceive, and make her foster-mother to a part of those artificially hatched; and, acting the

same part with the other two, we had few more than twenty to bring up by hand.

Here commenced the grand difficulty. The nurse chickens soon became weary of their basket, feeling their natural desire of almost perpetual action, and the want of a mother to lead and brood them. A capon is best calculated for this business, as from size being capable of covering such a number: but much discipline is required to bring the capon to this habit. I have never made trial of the capon for this employ, but am assured that the discipline described by Buffon, namely, plucking the feathers from the breast, and repeatedly irritating the skin with nettles, in order that the pain may impel the bird to take chickens to the part by way of alleviation, is equally futile and unnecessary as it is barbarous: and indeed more probable to enrage him, and endanger the brood. It is said, feeding the chicks a few times with the capon, attaches it to them; that some capons will brood them almost immediately, others can never be induced to it by any means. In the mean time, an ARTIFICIAL MOTHER cannot be dispensed with, under which the chickens may brood and shelter.

We made choice of a BOX, the sides of which we covered with lamb's skin dressed with the wool on, the lid being covered with the same, placed and confined sloping within the box, so that one extremity reached nearly to the bottom, the other gradually ascending; thus the smallest chicks, by penetrating to the farther end, could nestle their heads and shoulders in the wool, and those which were taller would find the some convenience in the ascending

part of the lid. Such is their mode of nestling under the hen, and which is absolutely necessary to their comfort and even their existence. A curtain of flannel was suspended over the opening of the box.

A WICKER CAGE OR COOP, surrounding the above box and artificial mother, which will entirely confine the chickens to its circumference, is a great convenience in bad weather, or for the purpose of separation: indeed, a coop of that kind for a hen and brood is always useful. One discovery we made in the attempt at artificial hatching, namely, that young chicks are injured by being placed upon a BOARDED FLOOR; it is too cold and chilling for them, the feet and legs appearing swollen, as if from chilblains. Dry earth is their proper floor.

Mr. Young recommends the following plan of an artificial mother, and the experimenter may make his election between the two, or improve on them both at his discretion.

"Five broods may at once be cherished under an artificial mother. This mother may be framed of a board ten inches broad, and fifteen inches long, resting on two legs in front, two inches in height, and on two props behind, two inches also in height. The board must be perforated with many small gimblet holes, for the escape of the heated air, and lined with lamb's skin dressed with the wool on, and the woolly side is to come in contact with the chickens.

"Over three of these mothers a wicker-basket is to be placed, for the protection of the chickens, four feet long, two feet broad, and fourteen inches high, with a lid open, a wooden sliding bottom to draw

out for cleaning, and a long narrow trough along the front, resting on two very low stools, for holding their food. PERCHES are to be fixed in the basket for the more advanced to roost on. A flannel curtain is to be placed in front, and at both ends of the mothers, for the chickens to run under, from which they soon learn to push outwards and inwards. These mothers, with the wicker basket over them, are to be placed against a hot wall, at the back of the kitchen fire, or in any other warm situation, where the heat shall not exceed 80 degrees of Fahrenheit.

"When the chickens are a week old, they are to be carried with the mother to a grass plat for feeding, and kept warm by a tin tube filled with hot water, which will continue sufficiently warm for about three hours, when the hot water is to be renewed. Towards the evening the mothers are to be again placed against the hot wall. Their food, as before observed, is to consist of coarse barley-meal, steamed till quite soft; steamed potatoes minced quite small, and occasionally pellets of course wheaten flour: these articles may be given to them alternately."

This description is certainly superior to mine, in variety of particulars and precision, if not in real use.

It will readily appear why, although we were perfectly satisfied with our success in hatching a considerable number of eggs artificially, we did not yet wish to continue the practice. The fact is, there is no adequate motive in this country, where a quantity of poultry, fully equal, and even superior to the demand, may be raised by the natural means: were it otherwise, there is no doubt that the artificial process

might be conducted here with sufficient success, and to the immense multiplication of domestic fowls of every description, an adequate expenditure in houses and attendants being pre-supposed. On a first consideration of the subject, indeed, a great apparent difficulty may present, of obtaining a sufficient quantity of eggs; but the case is parallel, at any rate, to a certain degree, in Egypt, where, notwithstanding, such an obstacle has never impeded the practice. This view is, in all likelihood, appropriate to France equally with England. No person, then, will attempt artificial hatching, but from the motive of mere curiosity, and that motive must indeed be powerful, to carry one through the endless labour and attendance required. A lady, some years since, obtained a premium of ten guineas from one of the Societies, for the plan of multiplying chickens, by causing the hens to sit CONSTANTLY or a great many times in the season, which we had tried without success many years before. It is, in fact, to undertake the most difficult part of the artificial process, that of bringing up the chickens without hens. Nor would the disappointments be few in procuring hens which would sit beyond the usual periods, and those so disposed soon become consumptive and useless from such hard duty. The plan, indeed, as a general one, is totally useless. On this head, De Reaumur thus characte rizes the hens of his country:

"So long as we shall depend entirely upon our hens, we must not expect to see the multiplication of the species carried so far as might be wished; it is not nearly all the hens of a poultry-yard, that are willing

every year to sit. In some years, when I have wanted sitting hens for some experiments, I have had the mortification not to find above four such, among fifty or sixty of them: complaints of hens that refuse to sit, are very common in this country (France), and I think in general, that it seldom happens that the third or even the fourth part of them are so disposed. Beside this, they are not always willing to sit at those times when we wish they would, which is in part the reason why the early chickens are dear a great while, and why we have not every year a supply of them as early as we wish for it."

Hatching by steam succeeded; and about the year 1823, various attempts were made at Bath and in London, to bring artificial hatching into use. I had a letter from the Bath experimenter, and with respect to the Londoner he exhibited his practice at one shilling each person, which in course I attended. Some trials have been since made and published, but the plan has not yet been perfected to the degree of public utility, either here or in France. It may be that an Egyptian climate is indispensable for its successful completion.

EGGS, FEATHERS, &c.

Eggs become desiccated, and, in consequence, lose great part of their substance and nutritive quality by keeping, and every body knows the value of a fresh-laid egg. They will retain their moisture and goodness, however, three or four months, or more, if the pores of the shell be closed, and rendered impervious to the air by some unctuous application. We generally anoint them with mutton suet melted, and set them on end, wedged close together, in bran, *stratum super stratum*,

the containing box being closely covered. Laid upon the side, the yolk will adhere to the shell. They thus come into use, at the end of a considerable period of time, in a state almost equal to new-laid eggs for consumption, but ought not to be trusted for incubation, excepting in the case of the imported eggs of rare birds. Another method of preservation has lately been recommended in print. To dip eggs in oil, and pack them in salt. At any rate they ought not to be deposited on their sides. Our annual import of eggs from France has, of late years, been very considerable. A few years since, the following successful experiment for their preservation was made at Paris. A large number of eggs was placed in a vessel, in which was some water saturated with lime and a little salt. They were kept in that state several years, and, being opened in the month of January, were found in excellent preservation, without a single failure. This account was forwarded to me by an English lady, an experienced poultry breeder. The quantity of turkeys and other poultry imported at Dover from France in the month of December, has often exceeded the weight of twelve tons in a week.

FEATHERS or DOWN intended for use, should be plucked as soon as possible after the bird is dead, and before it is cold, otherwise they are defective in that elasticity which is their most valuable property, and are liable to decay. The bird, should, besides, be in good health, and not moulting, for the feathers to be in perfection: and being plucked, and a sufficient number collected, the sooner they are dried in the oven the better, since they are else apt to heat and stick together.

The practice of plucking the LIVING FOWL (see page 55), if interest must sanction such a custom, should be performed in the most tender and careful manner, and not at or near the time of moulting. The ripe down only should be taken from each wing of the swan, goose, or duck, and four or five feathers. Lean geese furnish the greatest quantity of down and feathers, and of the best quality: to which also the goodness of their food, and the care bestowed, contribute in a considerable degree. Geese are sometimes stripped three times in the season, but in the whole affair I speak with entire ignorance of the practice. Strict PRECAUTION is necessary to HOUSE the stripped fowls, for a time sufficient to enable them to endure the air, and by all means to keep them from the water. The down and feathers of ducks, pigeons, and partridges are used in France for mattresses and pillows. *M. Parmentier* proposed to multiply the breed of WHITE TURKEYS, and to employ for plumes the feathers found on the lateral part of the thighs of those fowls.

A correspondent, who has made the requisite inquiries, furnishes the following particulars:

"The breeding and rearing of geese constitute the chief employment of the inhabitants of the *fens* in Lincolnshire. The feathers are highly valuable, as are also the quills. For the stuffing of beds, the feathers of geese are considered the best. Whether from increasing luxury, diminution in quantity, or both causes co-operating, the demand is obliged to be supplied by importation: and the article has consequently advanced in price. This county, however, still furnishes the markets with large quantities. During the

breeding season the geese become joint tenants with the inhabitants. *Three rows of coarse wicker pens, placed one above another, are found in every apartment, even the bed-chamber.* Each bird has its separate lodge, of which it keeps possession. A *gozzard* or gooseherd attends the flock.

"The geese are usually plucked five times a year, though some pluck them only three times, and others four; commencing at Lady-day, again at Midsummer, Lammas, Michaelmas, and Martinmas. Goslings are not spared; early plucking, they say, tending to increase the succeeding feathers. The common mode of plucking live geese is considered barbarous; but it has prevailed perhaps ever since feather-beds came into general use. In answer to the charge of cruelty preferred against the 'fen slodgers,' the writer deems it an act of justice to state, that the owners are careful not to pull until the feathers are *ripe*, that is, not until they are just ready to fall; because, if forced from the skin before, which is known by the appearance of blood at the roots, they are of inferior value; those plucked after the geese are *dead*, are affirmed to be of still less worth. The larger feathers and quills are pulled twice a year only. That the reader may form some idea of the extent to which goose breeding and feeding is carried in the fens, instances are not infrequent, in some establishments, where five coombs of corn are daily consumed by the brood geese only."

SECTION VIII.

On feeding and fattening Chickens and Fowls.

THE points for consideration on this branch of the subject are — the local CONVENIENCES, the modes, common or extraordinary, the variety and quality of the FOOD, and the length of TIME necessary for completion of the object.

The well-known common methods are, to give fowls the run of the farm-yard, where they thrive upon the offals of the stable, and other refuse, with perhaps some small regular daily feeds; but at threshing time they become fat, and are thence styled BARN-DOOR FOWLS, probably the most delicate and high-flavoured of all others, both from their full allowance of the finest corn, and the constant health in which they are kept, by living in the natural state, and having the full enjoyment of air and exercise; or they are confined during a certain number of weeks in coops, those fowls which are soonest ready being drawn as wanted. It is a common practice with some housewives, to coop their barn-door fowls for a week or two, under the notion of improving them for the table and increasing their fat; a practice which, however, seldom succeeds, since the fowls generally pine for their loss of liberty, and, slighting their food, lose instead of gain additional flesh. Such a period, in

fact, is too short for them to become accustomed to confinement.

FEEDING-HOUSES, at once warm and airy, with earth floors, such as have been already described, well raised, and capacious enough to accommodate twenty or thirty fowls, have always succeeded best, according to my experience. The floor may be slightly littered down, the litter often changed, and the greatest cleanliness should be observed. Sandy gravel should be placed in several different layers, and often changed. A sufficient number of troughs, for both water and food, should be placed around, that the stock may feed with as little interruption as possible from each other, and perches in the same proportion should be furnished for those birds which are inclined to perch, which few of them will desire, after they have begun to fatten, but which helps to keep them easy and contented until that period. In this mode fowls may be fattened to the highest pitch, and yet preserved in a healthy state, their flesh being equal in quality to that of the barn-door fowl. I am aware, that to suffer fattening fowls to perch is contrary to the general practice, since it is supposed to bend and deform the breast-bone; but as soon as they become heavy and indolent from feeding, they will rather incline to rest in the straw; and the liberty of perching on the commencement of their cooping, has a tendency to accelerate the period when they are more inclined to rest on the floor. Fowls, moreover, of considerable growth, will have many of them become already crooked-breasted from perching whilst at large, although

much depends upon form in this case, since we find aged cocks and hens of the best shape, which have perched all their lives, with the breast-bone perfectly straight.

It has always been a favourite maxim among feeders, that THE PRIVATION OF LIGHT, by inclining fowls to a constant state of repose, excepting when moved by the appetite for food, promotes and accelerates obesity. It may probably be so, although not promotive of health; but as it is no question, that a state of obesity obtained in this way cannot be a state of health, a real question arises—whether the flesh of animals so fed, can equal in flavour, nutriment, and salubrity, that of the same species fed in a more natural way? Pecuniary and market interest may perhaps be best answered by the plan of darkness and close confinement, but a feeder for his own table, of delicate taste, and ambitious of furnishing his board with the choicest and most salubrious viands, will declare for the natural mode of feeding; and, in that view, A FEEDING-YARD, gravelled, and sown with the grasses already described, the room being open all day, for the fowls to retire at pleasure, will have a decided preference, as the nearest approach to the barn-door system.

INSECTS and ANIMAL food, also, form a part of the natural diet of poultry, are medicinal to them in a weakly state, and the want of such food may sometimes impede their thriving.

SIZED fowls have been intended thus far; but the above feeding-rooms are well calculated for fattening the younger chickens, which may be put up

as soon as the hen shall have quitted her charge, and, so to speak, before they have run off their sucking flesh. For, generally, when well kept and in health, they will be in fine condition and full of flesh, at that period, which flesh is afterwards expended in the exercise of foraging for food, and in the increase of stature, and it may be a work of some time afterwards to recover it, and more especially in young cocks, and all those which stand high upon the leg. In fact, all those that appear to have long legs, should be fattened from the hen, to make the best of them; it being extremely difficult, and often impossible, to fatten long-legged fowls in coops, which, however, are brought to a good weight at the barn-door.

In the year 1779, says one of those small publications which are circulated through the country for the instruction of our housewives, a gentleman in London presented to a learned body a newly-invented method of rearing chickens for the spit, quicker than was ever before discovered, for which the learned society honoured him with a gold metal. The method is as follows:—the chickens are to be taken from the hen the night after they are hatched, and fed with eggs boiled hard, chopped, and mixed with crumbs of bread, as larks and other birds are fed, for the first fortnight; after which, give them oatmeal and treacle, mixed so as to crumble, of which the chickens are very fond, and thrive so fast that at two months' end, they will be as large as full grown fowls. On this sagacious project, I shall only remark, that however learned the public body

alluded to might be on other important subjects, they appear by this award, to have shown little information in chickenology.

In the choice of FULL-SIZED fowls for feeding, the short-legged and early-hatched always deserve a preference. The green linnet is an excellent model of form for the domestic fowl, and the true Dorking breed approaches the nearest to such model. In course, the smaller breeds and the game are the most delicate and soonest ripe. The London chicken butchers, as they are termed, or poulterers, are said to be of all others the most dexterous and expeditious feeders, putting up a coop of fowls, and making them thoroughly fat within the space of a fortnight: using much grease, and that perhaps not of the most delicate kind, in the food. In this way, I have no boasts to make, having always found it necessary to allow a considerable number of weeks for the purpose of making fowls fat in coops. In the common way, this business is often badly managed, fowls being huddled together in a small coop, tearing each other to pieces, instead of enjoying that repose which alone can ensure the wished for object; irregularly fed and cleaned, until they are so *stenched* and poisoned in their own excrement, that their flesh actually smells and tastes of it when smoking upon the table.

All practical and practicable plans have their peculiar advantages; among others that of leaving poultry to FORAGE AND SHIFT FOR THEMSELVES; but where a steady and regular profit is required from them, the best method, whether for domestic use or

sale, is CONSTANT HIGH KEEP from the beginning, whence they will not only be always ready for the table with very little extra attention, but their flesh will be superior in juiciness and rich flavour, to those which are fattened from a low and emaciated state. Fed in this mode, the SPRING PULLETS are particularly fine, at the same time most nourishing and restorative food. The pullets which have been hatched in March, if high fed from the *teat*, will lay plentifully through the following autumn, and not being intended for breeding stock, the advantage of their eggs may be taken, and themselves disposed of thoroughly fat for the table in February, about which period their laying will be finished. In February, 1792, we had a fine show of white and coloured pullets, most wonderfully improved in size, although we had not for years changed our stock, and so excessively fat from the run of the barn-yard, that they opened more like Michaelmas geese than chickens.

Instead of giving ordinary and TAIL-CORN to my fattening and breeding poultry, I have always found it most advantageous to allow the heaviest and best, putting the confined fowls upon a level with those fed at the barn-door, where they have their share of the weightiest and finest corn. This high feeding shows itself not only in the size and flesh of the fowls, but in the size, weight, and substantial goodness of their eggs, which in those valuable particulars, will prove far superior to the eggs of fowls fed upon ordinary corn or washy potatoes; two eggs of the former going farther in domestic use, than three

of the latter. The water also given to fattening fowls should be often renewed, fresh and clean; indeed, those which have been well kept, will turn with disgust from ordinary food and foul water. The profit of my plan, of allowing the heaviest and best corn to poultry, has lately been disputed, both in France and England. The sum of my rejoinder is, that I have simply recorded matter of experiment, further confirmed by the following fact: — In the summer of 1827, a Spanish lady visitor persuaded one of my daughters that, in her country, wetted bran was the best food for hens, increasing their number of eggs. It was tried, and the consequence soon was, the hens taken with what appeared to be a sore throat, and obstruction in that part. One hen became so ill, that it was proposed to kill her. Soon after, another was affected in the same way. The bran diet was then discontinued, and solid corn resumed, when both shortly recovered.

Eggs. December 7, half-bred Poland hen matched with the cock: began to lay on the 28th. On March 1, 1806, she had laid 56 eggs, and afterwards sat over 12 eggs. After incubation had commenced she laid two eggs, making the total 58, which two were withdrawn. Her eggs unbroken weighed from one ounce three quarters to two ounces each, amounting, at one and three quarters each, to nearly seven pounds avoirdupois. I had, from motives of curiosity, deducted the weight of the shells, but the memorandum is lost. The eggs of another hen, in poor condition and ill fed, were small, light, and the yolk unsubstantial; the same hen, after good

feeding, laid plenty of eggs of larger size, and nearly double the weight. The largest eggs will weigh two ounces and a half, those of the Chittagong hen, perhaps, three ounces.

To promote FECUNDITY and great laying in the hen, nothing more is necessary than the best corn and fair water: but malted or sprouted barley, has occasionally a good effect, whilst the hens are kept on solid corn; but, if continued too long, they are apt to scour. Cordial horse-ball is good to promote laying in the cold season, and toast and ale, as every housewife well knows. It must be noted, that nothing is more necessary towards success in the particular of obtaining plenty of eggs, than a good attendance of cocks, especially in the cold season; and it is also especially to be observed, that a cock whilst moulting is generally useless.

My practice is, to withdraw the cock under that circumstance to a separate walk, and substitute another, which is known and familiar with the hens, since a stranger will not always be received, and such a circumstance will sometimes totally interrupt the business of the poultry-yard: these particulars respecting the cock require the more especial attention, since, according to the old poultry books, one cock was deemed sufficient for ten or even a dozen hens, whereas, in winter time, a cock to every four hens may be necessary. Buffon says, a hen well fed and attended will produce upwards of one hundred and fifty eggs in a year, besides two broods of chickens. I have observed that a hen generally CACKLES three or four days previously to laying. Some half-bred

game hens began to lay as soon as their chickens were three weeks old; the consequence of high keep and good attendance of the cocks.

A correspondent in France (1815) informed me, that my little book had reached that country, so celebrated for poultry, and that the good housewives of France made themselves very merry with my practice of restricting the cock to so few as half-a-dozen hens, their allowance being twenty, or even twenty-five. The French Naturalists, also, in their new Dictionary, I find, have copied and recommended this liberal practice. What difference, in such respect, may subsist between the soil or animals of England and France, I am not qualified to determine; I can only assure the reader that my rule is the result of long and actual experience. A certain English traveller, twenty years since, brought home and published an account almost equally extraordinary of French *men*. That point also I leave to abler judges. As to poultry keepers in any country, it will readily be believed that they make few experiments, and still fewer records; and the keeper of two or three score hens, at any rate breeding a considerable stock from such a *number*, does not trouble himself to investigate the merits of his practice, satisfied that it is according to the established mode.

QUANTITIES OF FOOD. By an experiment made in July, 1806, a measured peck of good barley kept in a high style of condition the following stock, confined, and having no other provision: one cock, three hens, three March chickens, six April, and six May ditto, during eight clear days, and one feed

left. According to another trial, in the winter season, a cock and two hens kept by themselves seven clear days, consumed a quarter of a peck of the best barley, having no other food, having as much as they chose to eat. The same being tried at their liberty, and pecking about, with cabbage leaves occasionally thrown to them, did not eat so much barley in the week, although allowed all they desired. They were in a perfect thriving state, but it must be remembered that light and ordinary corn would not have gone so far, or have kept the fowls in such condition.

Poultry which have their fill of corn, will eat occasionally cabbage or marigold leaves greedily. Barley and wheat are the great dependence for chicken poultry. The heaviest oats will keep them, it is true, but neither go so far as other corn, nor agree so well with the chickens, being apt to scour them, and the chickens generally are tired of oats after a while. Brank or French wheat is also an unsubstantial food. Oats, however, are recommended to forward and promote laying in hens; and in Kent, Sussex, and Surrey are deemed superior for fattening both poultry and pigs.

Sun-flower seed has been periodically recommended with high commendations, as food for poultry, game, sheep, and pigs, but never yet attended to by the generality of feeders. I have used it occasionally in small quantities, but without any attention to its merits. The experiment may easily be made.

The Capon. I have already acknowledged my inferiority in the affair of quickly feeding poultry in

close coops, and have a similar acknowledgment to make respecting capons, never having had any success in cutting either fowls or rabbits for such purposes, nor, in truth, much affecting the practice, which, however, has long been successfully carried on by the breeders of Sussex, Surrey, and Berks, and seems to have been almost entirely confined to that part of the country. In fact, the mode of performing the operation seems to be utterly unknown elsewhere; or granting that the common cutters and cow-leeches have some speculative knowledge thereon, they generally kill the patient, in their attempt at the practice.

The Chinese are said to be particularly skilful in this OPERATION, the outline of which, according to their mode, I give as a matter of curiosity. *The wings of the fowl are folded back till they meet, and the left foot of the operator is placed upon them, the great toe of his right foot pressing upon the legs to keep them fast. After pulling the feathers, an incision is made, one inch long, and one inch from the spine, obliquely downward and forward.* The reader may smile at that which may be deemed false delicacy in me, but I have naturally a kind of dread and abhorrence of all practices of this kind, however profitable. I can take the life of an animal without the shadow of a scruple; but every act that bears the semblance of torture, shocks me to the marrow. They who wish to have their fowls or rabbits safely cut, where the practice is not common, must procure an operator from the proper district.

The following remarks on the capon, in which,

we Englishmen may venture to say, there is some little flourish *à la Française*, are taken from *Cuvier's* work, before quoted.—"Instead of being melancholy, abashed, and humiliated, the capon assumes a bold, lofty, and triumphant air; and such is the influence of audacity over all animals, that this borrowed courage completely imposes on the cocks and hens, and prevents them from disturbing him in the fulfilment of his charge. At first, he is a little awkward in the exercise of his office. His ambition, in imitating in his gait the majesty and dignity of the cocks, makes him carry his head too stiff, and prevents him from seeing the chickens, which he sometimes thus inadvertently tramples under foot. But experience soon teaches him to avoid such mishaps, and accidents of the same kind do not occur again. As his voice is not so expressive as that of the hen to engage the chickens to follow and assemble near him, this deficiency has been supplied by attaching a little bell to his neck. When he is once instructed to conduct chickens in this way, he always remains capable of doing it; or, at all events, it is very easy to bring him back to the habit of it when required. The capon has also been taught to hatch eggs—every thing indeed, except to lay them." (Part XXI. Order of the *Gallinæ*. Plates on a large scale and excellent.) The cock is indeed a favoured male, and so beyond all others, to retain his native courage after emasculation!

CRAMMING. Barley and wheat meal are generally the basis or chief ingredient, in all fattening mixtures for chickens and fowls; but in Sussex, ground

oats are used, and in that country, I think, oats are in higher repute for fattening than elsewhere, many large hogs being there fattened with them. The Sussex men making the highest pretensions as poultry-feeders, I shall give them the precedence in quotation. In the Report for that county, the Rev. Arthur Young says, "North Chappel, Kinsford, &c. are famous for their fowls. They are fattened there to a size and perfection unknown elsewhere. The food given them is ground oats made into gruel, mixed with hog's grease, sugar, pot-liquor, and milk: or ground oats, treacle, and suet, sheep's plucks, &c. The fowls are kept very warm, and crammed morning and night. The pot-liquor is mixed with a few handfuls of oatmeal and boiled, with which the meal is kneaded into crams or rolls of a proper size. The fowls are put into the coop two or three days before they are crammed, which is continued for a fortnight, and they are then sold to the higglers. Those fowls full grown weigh seven pounds each, the average weight five pounds, but there are instances of individuals double the weight. They were sold at the time of the Survey, at four to five shillings each. Mr. Turner, of North Chappel, a tenant of Lord Egremont, crams two hundred fowls per annum. Many fat capons are fed in this manner; good ones always look pale and waste away; great art and attention is requisite to cut them, and numbers are destroyed in the operation. The Sussex breed are too long in the body to be cut with much success, which is done at three quarters old." Thus far Mr. Young—but what can possibly be

meant by—good ones always looking pale, and wasting away? One would suppose that "wasting away," must be indicative of loose, flabby, and bad flesh, instead of good.

WOKINGHAM, in Berks, is particularly famous for fatted fowls, by which many persons in that town and vicinity gain a livelihood. The fowls are sold to the London dealers, and the sum of £150 has been returned in one market day by this traffic. Twenty dozen of these fowls were purchased for one gala at Windsor, after the rate of half a guinea the couple. At some seasons, fifteen shillings have been paid for a couple, Fowls constitute the principal commerce of the town. Romford, in Essex, is also a great market for poultry, but generally of the store or barn-door kind, and not artificially fed. FOWL, as well as GOOSE FEEDING, is carried on to a far greater extent in the vicinity of London, than in any other part, namely, at Bow and Stratford, where the fowl-feeding system is said to be equally regular and the food equally good as with the goose. It is said, also, that the dispatch in feeding is superior to any thing known elsewhere.

The following Noblemen and Gentlemen have been named to me as our chief amateur breeders of Poultry. His Grace the Duke of Leeds, Hornby Castle, Yorkshire—His Grace the Duke of Bedford, Woburn Abbey, Beds—The Most Noble the Marquis of Hastings, Donnington Park, Leicestershire—The Most Noble the Marquis of Donegal, Belfast, Ireland—The Right Honourable the Earl of Clarendon, the Grove, Watford, Herts—The Right Hon-

ourable Lord Ducie, Woolcester Park, Gloucestershire—Sir Bellingham Graham, near Ripon, Yorkshire—Sir John Sebright, Beechwood, Herts—Burlow Peters, Esq., near Market Waitham, Yorkshire.

In those districts distinguished for poultry breeding, great numbers are reared and fattened for the supply of the metropolis, a branch of business in which many farmers are concerned to a considerable and profitable extent.

The following list comprises the names of the most considerable Goose and Fowl Feeders :—

Arrington, Ballingdon, Suffolk; J. Boyce, Stratford, Essex; Chatten, Suffolk; Clarke, Cambridgeshire; J. and Mark Cooper, Cambridge; Fawcett, Buxted, Surrey; Flatt and Walton, Tostock and Hepworth, Suffolk; Foote, Chertsey; Fordham, Salisbury; Glover, Lingfield, Surrey; Gower, Roxwell, near Chelmsford, Essex; Homewood, Horn, Surrey; Hart, and Howsden, Gurton, Cambridgeshire; Jupp, Horsham, Surrey; H. J. and W. Knight, Stratford, Essex; Lewery, Staughton, Sussex; W. Lucock, Epsom, Surrey; Mansfield, near Epping; G. Paget, Reigate, Surrey; Porter, Roxwell, Essex; Stevens, Aylesbury; Stiff, Woolpit, Suffolk; Turner, Epping; Wells, Guilford, Surrey; White, Willingale-Spain, Essex; Whiting, Great Walton.

W. Simpson, Edinburgh, Goose and Fowl Feeder; also all descriptions of game throughout the season.

The Wokingham METHOD OF FEEDING is to confine the fowls in a dark place, and cram them with a paste made of barley-meal, mutton suet, treacle, or

coarse sugar, and milk, and they are found completely ripe in a fortnight. If kept longer, the fever that is induced by this continued state of repletion, renders them red and unsaleable, and frequently kills them. GEESE are likewise bred in the same neighbourhood, in great numbers, and sold about Midsummer to itinerant dealers; the price at the time the survey was made, two shillings to two and threepence each. I must presume to repeat, it appears to me utterly contrary to reason, that fowls fed upon such greasy and impure mixtures can possibly produce flesh or fat so firm, delicate, high flavoured, or nourishing, as those fattened upon more simple and substantial food, as for example, meal and milk; and I think lightly of the addition of either treacle or sugar. With respect to grease of any kind, its chief effect must be to render the flesh loose and of indelicate flavour. Nor is any advantage gained, excluding the commercial one, as I confine myself entirely to the consideration of home use, by very quick feeding: for real excellence cannot be obtained but by waiting nature's time, and using the best food. Besides all this, I have been very unsuccessful in my few attempts to fatten fowls by cramming—they seem to loath the crams, to pine and to lose the flesh they were put up with, instead of acquiring fat; and where crammed fowls do succeed, they must necessarily, in the height of their fat, be in a state of disease.

The price of poultry in London perhaps had never been so high, as in May 1827; to be attributed to an unfavourable season and the extreme fulness

of the town. Young fowls were sold at eighteen shillings the couple, and ducks equally dear.

The patriotic Earl Spencer, active and sedulous in the promotion of every object of rural economy, holds an annual Poultry Show at Chapel Brampton, Northamptonshire, of which the Countess Spencer was the original patroness.

The prizes given for fatted poultry best answering the following descriptions:—

The Turkeys should be of the black sort, they being in general whitest and finest in flesh, deepest in chest and highest in flavour.

The Fowls should be plump, deep, long, and capacious in body, with short white legs, of small-sized bones, of very white, juicy, fine grained flesh, the fat and skin equally white, and of delicate flavour.

The Geese long in body, and small in bone; they must weigh 12lbs. or upwards.

The Ducks should be long in body, and small in bone, and must weigh five pounds or upwards.

All bred in Northamptonshire, within the year, and shown alive.

No person to have more than one prize; and no one to have a prize who is judged guilty of excessive feeding to increase the weight of his poultry on the morning of the Show.

Small-boned, well-proportioned poultry greatly excel the large-boned, long-legged kind, in colour, and fineness of flesh, and delicacy of flavour: for it is held good, that of all animals of the domestic kind, those which have the smallest, cleanest, finest bones, are in general the best proportioned, and are covered with

the best and finest grained meat—besides being, in the opinion of good judges, the most inclined to feed, and fatted with the smallest proportionable quantity of food, to the greatest comparative weight and size.

The greatest supply, and of the best quality, of turkeys, are said to be derived from Cambridgeshire and Norfolk; of geese from Suffolk. The same of Surrey and Essex, for fowls and chickens; Essex also supplies most of Guinea and pea-fowls.

The week preceding Michaelmas Day 1830, forty tons of poultry were sent from Bury St. Edmunds, Suffolk, to London, thirty of which were geese; and sixteen tons of the latter were the property of Messrs. Flatt and Walton, poulterers of Tostock and Hepworth in that county: the whole were conveyed by the waggons of Sykes and Co.

Mr. Clarke, of Boston, transmitted to London in the Christmas of 1833, the following quantity of poultry: 2400 geese, and 800 turkeys; Mr. Haines, poultryman of Spalding, also killed and forwarded to Leadenhall market 1150 geese, 500 turkeys, 200 ducks, and 30 dozen fowls.

SECTION IX.

On the Diseases of Poultry and Pigeons.

THE diseases of our domestic animals kept for food, are generally the result of some error in diet or management, and should either have been prevented, or are to be cured most readily and advantageously by an immediate change, and adoption of the proper regimen. When that will not succeed, any farther risk is extremely questionable; and particularly with respect to poultry, little hope can be derived from medical attempts. In fact, the far greater part of that grave and plausible account of diseases and remedies, which is to be found in our common cattle and poultry books, is a farrago of sheer absurdity: the chief ground of which, it is to be apprehended, is random and ignorant guess-work.

COMMON FOWLS.—Of these the most frequent diseases, real or presumed, are thus named: the PIP, a white skin or scale growing upon the tip of the tongue. The CURE,—tear off the skin with your nail, and rub the tongue with salt. Of this I know nothing, and could never hear any thing with certainty. Imposthume upon the rump is called *roup*. This is directed to be opened, the core thrust out, and the part washed with salt and water. The roup also seems a general term for all diseases, but is chiefly applied to CATARRH, to which gallinaceous

fowls are much subject. The FLUX, and its opposite, CONSTIPATION. Cure the first with good solid food; the other with scalded bran or pollard, mixed with flet or skimmed milk, or pot-liquor, a small quantity of sulphur being added, if needful. VERMIN, generally the consequent of low keep, and want of cleanliness. The remedy obvious; not to forget sand and ashes for the fowls to roll in.

But the chief disease to which chickens and fowls are liable, originates in changes of weather, and the variation of temperature; and when the malady becomes confirmed, with running at the nostrils, swollen eyes, and other well-known symptoms, they are termed ROUPY. The discharge becoming fetid, like the glanders in horses, the disease is supposed to have arrived at the stage of infection; and whether so or not, it is certainly proper for cleanliness' sake, to SEPARATE the diseased from the healthy, whence the necessity of an INFIRMARY in a regular poultry establishment. Roupy hens seldom lay, and their eggs are scarcely wholesome. The eggs taken from a hen which died of the roup, were black, and in a state of putrefaction. In cases of ABSCESS, open with a pair of scissors, pressing out the matter with the fingers; our elders were in the habit of giving lettuce chopped small, mixed with bran steeped with honey: but in a bad case much ought not to be expected from the exhibition of lettuce, the superior efficacy of sulphur or calomel would be required.

Chickens are frequently, and chiefly in bad weather, seized with the CHIP, in about three weeks from their hatching, when all their beauty of plumage

vanishes, and they put on their long great coat, or rather shroud, and sit *chipping*, pining, and dying in corners; always apparently in torture, from a sense of cold, although to the touch they seem in a high state of fever. This disease seldom admits of remedy; but I have tried mustard in water, crams, with a small quantity of black pepper, and afterwards nitre, given in the water. The sun, or warmth in the house by the fire-side, are the best remedies. The fire is a great restorative of all young, indeed of all animals.

For grown fowls affected by the roup, warm lodging is necessary, and even the indulgence of the fire, or the warmth of the bake-house. Wash the nostrils with warm soap and water, as often as necessary, and the swollen eyes with warm milk and water. A pepper-corn in a pill of dough, three following days, is an old and favourite remedy, the patient being much chilled. Afterwards bathe the swollen parts with camphorated spirit, or brandy and warm water. As a finish to the cure, give sulphur in the drink, or a small pinch of calomel in dough three times in a week. The fowls being weak and not feeding well, the old remedy of rue chopped and made into pills with fresh butter, may be substituted for calomel; though I must acknowledge I could never find any perceptible effects from the rue pill.

The common symptom of GAPING, during this influenzal disease, induced the learned, a few years past, to coin a new disease under the name of the GAPES, which they conveniently attributed to a spe-

cies of *fasciola*, infecting the *trachea*, or windpipe, of poultry. For the roup and other diseases, and the exposition of customary cruelty, see an article in the Monthly Magazine of December, 1810. Pheasants and partridges, in their wild state, are also liable to the gapes, and from the same atmospheric cause. This symptom was observed very prevalent among them during the very variable summer, 1821.

The head being raw, and the eyes blinded from fighting, wash the eyes as before directed, and the head, which, after washing, may be alternately, according to need, dressed with fresh butter, and with brandy in which has been infused two or three drops of laudanum. A hen sate about in corners, and neither ate, drank, nor evacuated, yet looked full and not diseased. Her CROP was totally obstructed. On an incision being made from the bottom upwards, a quantity of new beans was found, which had vegetated. The wound being stitched properly, immediately healed, and the hen suffered little inconvenience. A cock's SPURS being too long, impeding his walk, and wounding his legs, they should be cut carefully with a sharp pen-knife, but not too near the quick, every three months.

PIGEONS, also, are subject to the ROUP, understanding by that term, a cold, or catarrh, the symptoms of which are too visible in the miserable creatures exposed to sale hung up in baskets, in all weathers and currents of air. Garlic in pills, and rue given in water, are the general remedies. Sheltered places, with room for exercise, and warm

seeds, or cordial horse-ball in their food, form the best dependence. They are in course most liable at MOULTING TIME, a season at which all kinds of poultry should be carefully sheltered and attended.

WOUNDS upon the head, or the WATTLES of Carriers and Barbs, to be treated as already directed for chickens; but if the parts should CANKER, as it is styled, wash with stale urine, or alum and water, or any spirit and water: or make an unguent of burnt alum and honey; or mix twenty grains of red precipitate with half an ounce of honey; or dissolve five grains of white vitriol in half a table-spoonful of vinegar, and mix with the above, alum and honey. Pigeons are liable to several peculiar internal complaints of weakness, for which it is probable that prevention, or subsequent care, are the only remedies. A variety of remedies are offered for vermin in pigeons, such as stavesacre, tobacco, snuff, and similar articles, but the only effectual one is strict CLEANLINESS.

Croppers, particularly, are apt to GORGE themselves, and all young pigeons are occasionally subject to have the crop obstructed by receiving too great a quantity of food, and too speedily, for digestion. The first, or old pigeons in this state, may be treated as already directed for fowls. The crops of the squabs being gently stroked upwards with the fingers, will generally be cleared a bean at a time: should this method fail, which will seldom happen, the usual incision may be made. The VERTIGO, MEGRIM, or GIDDINESS in pigeons, arises probably from some error of diet, or keeping, and I

know of no remedy, but confinement, with room for exercise, fine water being allowed, with chalk and saffron infused. For SCOURING, forge-water, or rust of iron in pellets of dough; afterwards, sulphur in the water. In ERUPTIONS, sulphurated water. If any external application be necessary, the unguents already directed will be proper. For wounds in the FEET, Venice turpentine spread on brown paper. The FLESH WEN, may be either opened, or cut off, the part being washed with alum water, &c. or the dressings used as before directed. EXOSTOSIS or the BONE WEN upon the joints, somewhat similar to splents upon the shank of the horse, is deemed incurable. The best cure, to fatten for the table. The CORE, a hard substance of a yellowish colour mixed with red, and resembling the core of an apple, is sometimes found in the anus or vent, and has been known in the œsophagus, or gullet of a pigeon. This will ripen and maturate, and may be then discharged, dissected, or drawn out. A purge of a very small quantity of tobacco is directed in this case, but on what grounds I am not informed.

In keeping poultry of all kinds, it ought to be a first consideration that there be sufficient ROOM and AIR for the number kept; otherwise, they will be, in the vulgar phrase, *stenched*, that is, infected by the impurity of their own atmosphere, and become, in consequence, subject to frequent mortality.

SECTION X.

The Turkey.

Of the TURKEY, or *Meleagris*, Buffon and others assert, there is but one species, and the only varieties I am aware of, in this country, are the COPPER and WHITE, the former long in great esteem; the latter of a most delicate whiteness, contrasted with its red head, said to have been originally imported from Holland; and the Norfolk BLACK already described, which has been of late years crossed with the large Virginian turkey, and is now esteemed our finest breed.

On the etymology of the word turkey I am altogether at a loss, unless we may suppose such a name to have been ludicrously bestowed from the ostentatious strut of the bird, by way of comparison with the pompous gravity of the Turk, an idea perhaps countenanced by the notion that turkeys were indigenous to Asia or Africa, and had been origi-

nally imported from thence to Europe. We might formerly, in all probability, be mistaken in the assertion that the turkey was entirely unknown to the old world, since it is described by several ancient Greek writers, and also bears its part in their fabulous narratives. The *Meleagrides*, sisters of *Meleager*, son of the king of *Macedonia*, bewailing the death of their brother, were metamorphosed into turkey-hens.

This reading, however, has not produced a final decision, since the indigenous country of the turkey has remained a question with the learned ornithologists: those opposed to the pretension of the ancients asserting, that the Greek *Meleagris*, in reality, was not a turkey, but *gallina Africana*, in modern English, a Guinea fowl. The error of supposing this bird of ancient Greece to have been a turkey, is said to have resulted from an observation made by Aristotle, that the bird laid spotted eggs, as our English turkeys do; but it is also observable, that such is not the case with the turkeys of other countries. The disputants on this side the question assign the honour to America, as being the indigenous country of the turkey; and the fact that turkeys were unknown to Europe, until the discovery of America, seems to afford considerable support to arguments on that side. Moreover, the *gallina Africana*, as we learn from Kennet's Parochial Antiquities, was known in England as early as the year 1277.

The turkey was seen in America by the first discoverers, and intituled, by the Spanish doctor Fernandez, *gallus Indicus*, and *gallus pavo*, the peacock of the Indies. They were both in a wild and do-

mesticated state in America on the arrival of the Spaniards, the wild being represented as of the largest size, reaching even the weight of sixty pounds, and of a superior flavour, but the flesh of a red colour. There is, however, some discrepancy in these accounts, certain of our voyagers representing the wild turkeys of Virginia as carrion, utterly unfit to be eaten, and express their disappointment in the expectation of a good meal from some which they shot from a tree. The supposed existence, in America, of a breed of wild turkeys unfit for food, is as old as the time of the Buccaneers; it is certain, however, that there is also a very eatable and excellent breed in both North and South America, though it be but lately that we have any account of the introduction of an American variety into this country.

This bird, of such worth and consequence for domestic use, was probably introduced into this country from Spain, soon after the discovery of America; since Tusser, who lived in the reign of Henry VII., represents it as a common Christmas dish, together with pig, goose, and capon. The turkey did not reach France quite so early; the first intelligence we have of it in that country, being at the nuptial feast of Charles IXth, in the year 1570. They have since been domesticated throughout the civilized world, in every climate, although said not to succeed equally on the barren sands of Africa.

There is a sameness of colour in the wild turkey, and the original stock seems to have been black, domestication generally inducing a variety of colours. Yet one would suppose that white also must have

been a primitive colour with them, else the transition from black to white would be rather unaccountable. In a state of nature, they are said to parade in flocks of five hundred, and even five thousand, feeding, in general, where abundance of nettles are to be found, the seed of which is their common food: they also feed upon a small red acorn, which, in the warm and fertile parts of America, is ripe in March, when the turkeys become so fat as to be unable to fly more than a few hundred yards, and are then soon run down by dogs and horsemen. They roost upon the highest trees, and are very easily shot or otherwise destroyed, being a heedless and stupid bird. Since the planting and cultivation of such extensive tracts in America, the wild breed of turkeys has been driven into the uncultivated regions, and has long since become very rare. The Indians make elegant clothing and beautiful fans of wild turkey feathers, and the French of Louisiana manufacture them into umbrellas.

The antipathy which the turkey cock entertains for any thing of a red colour is well known; and will indeed never be forgotten by myself, who, at about the age of eight years, having on a red waistcoat, was chased by two of them around a very extensive yard, to my most terrible affright and discomfiture. The county of Norfolk breeds the largest quantity of these fowls for market, which in the season, used formerly to travel, in their store state, upwards of one hundred miles, in a certain number of days, to the metropolis; but from the date of our late improvements, their passage to London has been generally made by land carriage, some still

travelling as formerly. They are also sent up dead, in hampers.

A turkey cock, the property of J. Lee, Esq., of Redbrook, near Whitchurch, which was black in the year 1821, became afterwards *perfectly white:* this extraordinary change took place so gradually, that in the middle of the moulting the bird was beautifully mottled, the feathers being black and white alternately.

Breeding and Management.

One TURKEY-COCK is sufficient for six hens, and even more, under the management of some districts, where one breeder keeps a cock for his own, and for the use of his neighbours, who send their hens, and in that mode avoid the charge of keeping a cock; but this practice is exposed to uncertainty, and is scarcely worth following, although, whilst the hen is sitting, the absence of a cock is no loss, as he will sometimes find the opportunity of tearing the hen from her nest, and in the struggle, of destroying the eggs.

The hen will COVER, according to her size, from nine to fifteen EGGS, and unless attended to, will, perhaps, steal a nest abroad in some improper and insecure place. The turkey-hen lays a considerable number of eggs in the spring, to the amount of eighteen to twenty-five and upwards, and her term of incubation is thirty days. She is a most steady sitter, and will sometimes continue upon her eggs

until almost starved, rather than quit her nest: hence the necessity of constant attendance with both victuals and water. She is also a most affectionate mother; and that most curious and accurate observer, Buffon, remarks her soft and plaintive cry, with her different tones and inflections of voice, expressive of her various feelings.

The above remarks, however, of Buffon, are to be received with a due degree of circumspection, since I have known unsteady sitters among turkeys; and however affectionate, the turkey hen, from her natural heedlessness and stupidity, is the most careless of mothers, and being a great traveller herself, will drag her brood over field, heath, or bog, never casting a regard behind her to call in her straggling chicks, nor stopping while she has one left to follow her. She differs beside, in this particular, from the industrious common hen; she never scratches for her chicks, leaving them entirely to their own instinct and their own industry. On these accounts, where turkeys are bred to any extent, and are permitted to range, it is necessary to allow them a KEEPER. The turkey-hen is nevertheless extremely vigilant and quick in the discovery of any birds of prey in the air, which may endanger her brood, and has the faculty, by a peculiar cry, of communicating her alarm, on which the chicks immediately seek shelter, or squat themselves upon the earth: but she will not, from her timid nature, fight for her brood as the common hen will. The domesticated as well as the wild turkey, runs with considerable speed.

The CHICKS must be withdrawn from the nest as

soon as hatched, and kept very warm. It is a very old and very general custom, to plunge them instantly into cold water, and then give them each a whole pepper-corn, with a small tea-spoonful of milk. This baptism is used by way of a prophylactic against catching cold, to which young chicks are so peculiarly liable; but it is a practice which I have never used, and from which, in severe weather, I should suspect danger; however, their being instantly thereafter wrapped in wool or flannel may secure them. The turkey, from sitting so close and steadily, hatches more regularly and quickly than the common hen.

The hen and brood must be HOUSED during a month or six weeks, dependent upon the state of the weather. First FOOD, curd or eggs boiled hard and chopped, and oat or barley-meal kneaded with milk, and frequently renewed with clear water, rather than milk, which often scours them. In case of the chicks appearing sickly and the feathers ruffled, indicating a chill from severity or change of weather, we generally allowed half ground malt with the barley-meal, and by way of a medicine, powdered caraway or coriander seeds. Also ARTIFICIAL WORMS, or boiled meat pulled into strings, in running after which the chicks have a salutary exercise. It is to be noted, that the above diet is beneficial for every other species of chicks, equally with the turkey.

Superfluous moisture, whether external or internal, is death to chickens, therefore all slop victuals should be rigorously avoided. The utmost CLEANLINESS is necessary, and a dry GRAVELLED layer is most proper. A fresh TURF of short sweet grass

daily, cleared from snails or slugs, which will scour young chicks, is very pleasing and comfortable to them, and promotes their health. The above substantial food was always our chief dependence with this brood, nor did we ever find it necessary to waste time in collecting ants' eggs or nettle seed, or give clover, rue, or wormwood, according to the directions of the elder house-wives. Eggs boiled hard are equally proper with curd, and generally nearer at hand; the egg being rotten, is said to be no objection, although we never used such.

Our first preference of water to milk for turkey chicks, so much recommended by the old writers, arose from the observation that chickens at large, among the troughs of milk-fed pigs, generally were sickly and scouring, and rough in their feathers: and more particularly so when they had access to potatoe-wash, which not only purged them, but glued their feathers together, keeping them in a comfortless and unhealthy state.

The weather being remarkably favourable, we have usually cooped the hen abroad, about two hours in the forenoon, in a moderately warm sun, whilst the chicks were only three or four weeks old, great care being taken that they did not stray far from the coop. Six weeks is their longest period of confinement within doors, after which it is more safe to coop the hen for another fortnight, that the chicks may acquire strength abroad sufficient to enable them to follow the dam, they being naturally inclined to stray too far, and to weaken themselves by fatigue. When full half-grown and well feathered, they be-

come sufficiently hardy, and in a good range, will provide themselves throughout the day, requiring only to be fed at their out-letting in the morning, and on their return at evening: the same in spacious farm-yards; if confined to the poultry-yard, their food and treatment is similar to that of the common cock and hen. Turkeys would prefer roosting abroad upon high trees, in the summer season, could that be permitted with a view to their safe keeping.

In the Sporting Magazine, August, 1824, there is a letter signed Rusticus, giving an excellent and obviously practical account of their breeding and management, whence I have made the following extracts. "At two periods of their lives turkeys are very apt to die; viz. about the third day after they are hatched, or when they throw out what is called the *red head*, which they do at about six or eight weeks old. At the latter period, a few old beans split small, may be mixed with advantage in their food.

"If any notion is entertained of a second hatch, the sooner one hen is turned away from her brood, and the brood mixed with that of another which has hatched about the same time, the better chance there is of rearing it; as the hen which is so turned away will lay again in a fortnight or three weeks, and thus hatch a second time before the month of July is out. Even under these circumstances, the chance of rearing the young ones is very uncertain, as they are hardly strong enough to meet the cold nights in the Autumn, when they often become what is called club-footed, and die. I rather recommend letting

the hen lay as many eggs as she will, and turning her off when she becomes broody. Hens thus treated will lay again in the month of August, so that, under all circumstances, they may be called profitable birds."

I have observed that "turkeys are both of a roving disposition and extremely heedless. Getting into a field of corn, they will do nearly as much mischief as pigs, by beating it down, though they are so stupid and backward at getting even ripe corn out of the ear, leaving the whole through which they have passed laid, yet the greater part of the corn untouched. As to pulse, they will pass over a field of ripe peas or beans, without having the wit to open a single pod. Turkeys in the neighbourhood of large woods, if not watched and prevented, will eagerly stroll thither without any desire to return, since they can there shelter and maintain themselves in both winter and summer: they very soon reassume the original wildness of their species. It is not generally known that Ireland produces very large flocks of turkeys, that they are there very cheap, and that the Irish climate seems to agree better with them than ours."

To FATTEN. Sodden barley, oat, or barley and wheat meal mixed, is the proper food for turkeys confined to feeding; generally their food and treatment are the same with other fowls. They may be fattened early, or may be CAPONIZED, a practice not very common; but the bulk of the turkeys are fed for Christmas, or the months immediately preceding and subsequent, when the quantities fat sent from

Norfolk alone, are immensely great; as also are previously the numbers of store turkeys. A mode of fattening turkeys, quite new to me, has been lately reported. It consists in cramming them with whole walnuts? I really supposed the intention of the reporters was to *cram* us, until a friend assured me, it is an old and successful practice.

Turkeys share with the geese in gleaning the corn fields, or shacking, and the former forage over the woods and commons, in the autumnal season, after which they are put up to be completely fattened. I have heard of the Norfolk turkeys fattened to weigh twenty, and even thirty pounds each; but I have never made any heavier than fifteen pounds ready for the spit.

In December, 1822, two turkeys were bred and fed, and sent to Cork, one weighing thirty-three, the other thirty-four pounds, from Sawbridgeworth, Herts, the residence of Sir John Malcolm.

The turkey has ever been remarked for its fulness and weight of flesh in the breast—no doubt, beside, the prime part. The dead weight of a fat turkey being twenty-one pounds, according to the late Mr. Young, renders fourteen pounds when ready for the spit.

In December, 1793, the number of turkeys sent to the metropolis, by the stage-coaches, from Norwich only, amounted to two thousand five hundred, and upwards, weighing nearly fourteen tons. On mentioning this fact to several poulterers, they assured me that, far enough from falling short of the above quantities during the late season, there can be

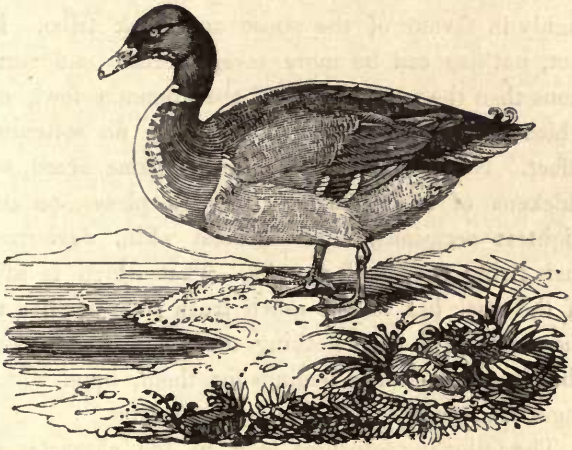
no doubt that they were greatly increased, even probably to half as many more. Whatever may be the distresses of the country, at any rate our luxuries do not fall off.

Turkeys are the most tender and difficult to rear of any of our domestic fowls; but with due care and attention—which, rightly considered in all things, give the least trouble—they may be produced and multiplied with little or no loss; and the same may be averred with all truth of the rest of our domestic fowls, and animals in general, the losses and vexations annually deplored arising almost entirely from ignorance and carelessness united hand in hand. Turkeys as well as geese, under a judicious system, may be rendered an object of a certain degree of consequence to the farmer.

SECTION XI.

THE AQUATIC SPECIES.

The Duck.



THE GOOSE and DUCK genus is said by naturalists to comprehend upwards of one hundred species, varying considerably in size and plumage from each other: comparatively few of them have been domesticated, but the date of that domestication is far beyond all memorial or record.

This genus of fowls was deservedly a great favourite with the ancients, from the mildness and simplicity of their character, from their great fecundity, and from the cheapness and ease with which they were pro-

vided. Although the duck will eat flesh and garbage of any kind like the chicken, yet water insects, weeds, vegetables, corn, and pulse, are its general food: and, as has been already observed, the goose desires nothing but the latter. The inoffensive and harmless character is common to both species, rendering them most pleasant as well as profitable animals to keep, and the contrast between them and the chickens, in their nature and habits, is highly in favour of the goose and duck tribe. In fact, nothing can be more savage, cruel, and voracious than the very nature of the common fowl, on which domestication and society work no softening effect. Nor is this confined to the game breed, for chickens of all kinds will tear to pieces, on the slightest occasions, their nearest akin, devouring their living flesh and entrails. That which is said of the duck has full as much truth when applied to the chicken; there is nothing too nasty, putrid, and abominable to human feelings for them, upon which eagerly to gratify their voracious appetites.

The following ferocious *trait* in the character of the *gallina*, or common hen, is quoted from *Reaumur*, in the New French Dictionary of Natural History. He had shut up two hens with a cock; these three individuals lived for some time in the strictest harmony: on a sudden, the hens took a dislike to the cock, and they both together attacked him, and succeeded, in the course of five or six days' ill treatment, in killing him. Surprised at such extraordinary conduct, *Reaumur* was curious to know the cause. He gave the two hens successively several cocks.

Their fury kindled anew against each of them, and they would all have experienced the fate of the first, had he left them long enough to lose all their blood and strength. The extraordinary part of this case was, first, that the cocks destroyed were strong and bold, and would easily have governed thirty rebel hens at large, yet cooped up, did not attempt either to defend themselves or even to avoid the attacks of the furies, their wives. Secondly, the two hens, being released from confinement, became immediately as mild and submissive to the cock, as any on the dunghill.

Of the kind and social nature of the duck, I had a few years since the following example.

We had drawn off for the table the whole of a lot of ducks, one excepted. This duck immediately joined a cock and hens, and became so attached to them, that it never willingly quitted their company, notwithstanding some harsh usage, particularly from the cock. It would neither feed nor rest without them, and showed its uneasiness at their occasional absence by continual clamour. The manners and actions of the duck, whether upon land or water, are curious and pleasant to contemplate. Their regular afternoon parade and march in line, the elder drakes and ducks in front, from the pond homewards, is a beautiful country spectacle, to be enjoyed by those who have a relish for the charms of simple nature. It is as long since as the year 1767, that I recollect the following trait in the character and manner of the duck. A parcel of ducks, probably a score, which had been accustomed to their liberty,

were, for some particular reason, shut up during several hours. On the door of the coop being opened, they rushed out, threw themselves into a single rank and file, and marched with rather a quick step, three or four times around a certain space, constantly bowing their heads to the ground, then elevating them and fluttering their wings: the ceremony finished, they quickly adjourned to the water. I have laughed a thousand times at the conceit with which my boyish imagination was impressed, namely, that the act which I had witnessed, was nothing less than a duckish thanksgiving for deliverance.

The social and conversing qualities of ducks, indeed, receive a degree of countenance from the relations of ornithologists. The habitudes of the EIDER ducks, so valuable for their down, which frequent the lakes of northern countries, are thus described: the ducks, flying in the air, are lured down from the heights by the loud voice of the mallard below, which nature seems to have furnished with powerful organs for vociferation. To this call all stragglers resort, and in a short time, a lake, before naked, is completely black with waterfowl. There they huddle together, extremely busy and very loud. Upon what business they are thus incessantly employed all day, is not easy to guess by us, who understand not their language. There appears no food for them in the midst of the lake, where they thus sit and cabal, nor does any action of theirs indicate a search of food: nor can courtship be the object, for which the season has not

arrived; yet not one of them seems a moment at rest. Now they pursue each other: now rise up screaming, in a body, then down again: the whole appearing one strange scene of bustle, conducted with the utmost regularity, and after all with nothing at all to do.

It is a curious illustration of the *de gustibus non est disputandum*, that the ancients considered the swan as a high delicacy, and abstained from the flesh of the goose as impure and indigestible; whilst the moderns reject the flesh of the swan, and eat that of the goose with an universal relish. But upon the excellence of the duck both parties seem to have agreed, as upon some self-evident, and thence incontrovertible proposition. The ancients went even beyond our greatest modern epicures, in their high esteem for the flesh of the duck, not only assigning thereto the most exquisite flavour and delicacy, but also attributing to it important medicinal properties; for Plutarch asserts that Cato preserved his whole household in health, by dieting them with ducks' flesh as a prophylactic; surely a most pleasant mode of taking physic! Several of the Roman medical writers, moreover, strongly recommend the same regimen as the most powerful means of exciting the prolific virtue in the sexes.

The opinion of a modern author respecting colour is, perhaps, most correct as it regards the goose; it is, however, pretty generally to be depended on: he says—when one has seen a wild goose, a description of its plumage will, to a feather, exactly correspond with that of any other. But in

the tame kinds, no two of any species are exactly alike; different in their size, their colours, and frequently in their general form, they seem the mere creatures of art; and having been so long dependent upon man for support, they seem to assume forms entirely suited to his necessities.

The only variety of the common duck among us, is the Rhone duck, imported from France, generally of a dark-coloured plumage, larger size, and supposed to improve our breed. They are of darker flesh, and more savoury than the English ducks, but somewhat coarse. Rhone ducks have been so constantly imported for a great number of years, that they are very generally mixed with our native breed. The English duck, particularly the white variety, and when they chance to have very light coloured flesh, are never of so high and savoury flavour as the darker colours. Muscovy and other foreign varieties of the duck, are kept rather out of curiosity than for the table.

The white AYLESBURY ducks are a beautiful and ornamental stock, matching well in colour with the EMBDEN GEESE. They are said to be early breeders. Vast quantities are fattened for the London markets, where they are in great demand; many families in Bucks derive a comfortable living from breeding and rearing ducks, the greater part of which, the early ones, at all events, are actually brought up by hand. The interior of the cottages of those who follow this occupation presents a very curious appearance to the stranger, being furnished with boxes, pens, &c. arranged round the walls for the

protection of the tender charge of the good wife, whose whole time and attention are taken up with this branch of domestic economy.

The CANVASS-BACKED ducks of America, bred only on the Potomac and Susquehanah rivers, are supposed to be the best in the world. I believe they have never yet been imported into Europe. DUCKLINGS are not safe in waters stocked with EELS. As to pike, every one initiated in country concerns well knows that pike will make free with both ducklings and goslings, but few duck-ponds have pike in them, though many have eels; and few breeders, I conceive, would trust their young stock in waters where are pike.

The ducklings provided for the Christmas market, a sufficiently insipid viand, have sometimes been sold as high as from six to twelve and fourteen shillings the couple. In China they hatch duck eggs by artificial heat, the young broods, in their climate, shifting for themselves in a very short time.

Under a regular system, it would be preferable to separate entirely the aquatic from the other poultry, the former to have their houses ranged along the banks of a piece of water, with a fence, and sufficiently capacious walks in front; access to the water by doors to be closed at will. Should the water be of considerable extent, a small boat would be necessary, and might be also conducive to the pleasure of angling.

It may be necessary to mention, by way of caution, a case which occurred in our poultry-yard. The ducks having been kept a considerable time from the water, by a severe frost, on a certain fine

day, the ice was broken for their convenience: being full of play, several were lost by diving under the ice, and great uncertainty would have prevailed as to their fate, but a further breach of the ice chanced to be made, almost immediately beneath which they were found drowned.

The DUCK will cover from eleven to fifteen eggs: her term of incubation THIRTY days. One DRAKE to five ducks. They begin to lay in February, and unless watched will lay abroad and conceal their eggs. The duck, on leaving her nest, will cover the eggs with leaves, or any thing within her reach, as will the goose, sometimes; the hen never. Our old housewives had a notion that the variety of ducks which have the bill bending upwards, lay a greater number of eggs than common; of which I can say nothing from my own observation, but can remark, that with ducks well fed, I never failed to have plenty of eggs. A duck has been known to lay, in the autumn, during forty-six nights successively, after which she continued to lay every other night.

The duck generally lays by night, or early in the morning, seldom after ten o'clock, with the exception of chilling and comfortless weather, when she will occasionally retain her egg until mid-day or afternoon. In order to keep her within until she has laid, some will EXAMINE HER; but it is better avoided, as her appearance and weight behind, or otherwise, may be trusted to by constant observers. Accustomed to a nest, she will not forsake it.

It has been formerly directed, to give each duck her own eggs, to which, however, much consequence

need not be attached; nevertheless, the eggs may be appropriated to each, with respect to colour; since white and light-coloured ducks produce similar-coloured eggs, and the brown and dark-coloured ducks those of the greenish blue and largest size. At any rate, it is most safe that the eggs be all of one colour, since I have known some few instances of the duck turning out with her bill those eggs which were not of her natural colour. The duck swimming with her tail flat and level with the water, indicates her egg being ready for protrusion.

In 1823, a duck, the property of Mr. John Morrel, of Belper Dally, laid an egg every day for eighty-five successive days.

During INCUBATION, the duck requires a secret and safe place, rather than any attendance, and will, at nature's call, cover her eggs and seek her food, and the refreshment of the waters. On HATCHING, there is not often a necessity for taking away any of the brood, barring accidents; and having hatched, let the duck retain her young upon the nest her own time. On her moving with her brood, prepare a coop, upon the short grass, if the weather be fine, or under shelter if otherwise: a wide and flat dish of water, often to be renewed, standing at hand; barley, or any meal, the first food. In rainy weather, particularly, it is useful to clip the tails of the ducklings, and the surrounding down beneath, since they are else apt to draggle and weaken themselves. The duck should be cooped at a distance from any other.

The period of her CONFINEMENT to the coop de-

pends on the weather and the strength of the ducklings. A fortnight seems the longest time necessary; and they may sometimes be permitted to enjoy the pond at the end of a week, but not for too great a length at once, least of all in cold wet weather, which will affect and cause them to scour and appear rough and draggled. In such case, they must be kept within a while, and have an allowance of bean or pea-meal mixed with their ordinary food. The meal of buck-wheat and the former is then proper. The straw beneath the duck should be often renewed, that the brood may have a dry and comfortable bed; and the mother herself be well fed with solid corn, without an ample allowance of which ducks are not to be reared or kept in perfection, although they gather so much abroad.

DUCK EGGS are often hatched by HENS, when ducks are more in request than chickens; also as ducks, in unfavourable situations, are the more easy to rear, as more hardy; and the plan has no objection in a confined place, and with a small stock, without the advantage of a pond; but the hen is much distressed, as is sufficiently visible, and, in fact, injured, by the anxiety she suffers in witnessing the supposed perils of her children, venturing upon the water.

The old wife's plan of suffering a hen to hatch a chicken or two with the ducklings, is unwise. The hen, for the sake of even a single individual of her more natural progeny, will entirely neglect her foster children the ducklings, at the critical time when they most need her guidance and protection. Their

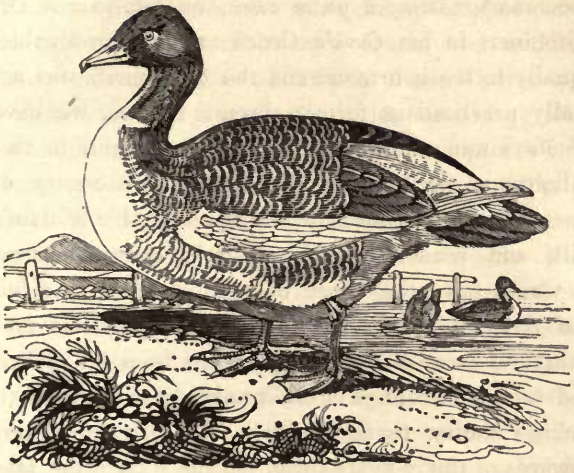
aquatic nature will be constantly urging them to the water, where they will remain until exhausted, returning to land like drowning rats, and probably finding no mother to brood them. Thus great numbers of ducklings are annually lost; and half-a-dozen of them may be lost for the sake of a chick or two. I have heard of setting duck eggs under a goose, which would cover a considerable number. *M. Tessier's* memoir read to the Royal Academy of Sciences at Paris, states the period of incubation of the hen upon ducks' eggs, to be from *twenty-five* to *thirty-four* days. I have neither known nor before heard of such a protracted sitting as thirty-four days.

Ducks are FATTENED, either in confinement, with plenty of food and water, or full as well, restricted to a pond, with access to as much solid food as they will eat: which last method I prefer. They fatten speedily, in this mode, mixing their hard meat with such variety abroad as is natural to them, more particularly if already in good case; and there is no check or impediment to thrift from pining, but every mouthful tells and weighs its due weight. A dish of mixed food, if preferred to whole corn, may remain on the bank, or rather in a shed, for the ducks. I must here mention a fact, which I have either actually verified, or supposed that I have verified. BARLEY, in any form, should never be used to fatten aquatics, ducks or geese, since it renders their flesh loose, *woolly*, and insipid, and depriving it of that high savoury flavour of brown meat, which is its valuable distinction; in a word, rendering it *chickeny*,

not unlike in flavour the flesh of ordinary and yellow-legged fowls. OATS, whole or bruised, are the standard fattening material for DUCKS and GEESE, to which may be added pea-meal, as it may be required. The house-wash is profitable to mix up their food, under confinement; but it is obvious, whilst they have the benefit of what the pond affords, they can be in no want of loose food.

Acorns in season are much affected by ducks which have a range; and in former days, residing on the borders of a forest, I had annually great numbers fattened entirely on that provision, to such excess, that the quantity of fat was inconvenient, both in cooking, and upon the table. Ducks so fed are certainly inferior in delicacy, but the flesh is of high flavour, and is far from disagreeable. I have also occasionally eaten of them fed on butchers' offal, when the flesh resembles wild fowl in flavour, with, however, considerable inferiority. Offal-fed ducks' flesh does not yet emit the abominable stench which issues from offal-fed pork, and with which the dining tables of London are so frequently and satisfactorily perfumed.

The Goose.



The Goose is a considerable object of rural economy, and kept in large flocks in the Eastern and Fen counties of England. In some of those parts, their geese are exposed to the cruel operation of being annually stripped of their feathers, and it has been said that fowls plucked alive have been sold in the market at Edinburgh. Indeed, the interested feelings of man know no scruple, and the cruelties practised upon the poor sea-fowl, which have their down and feathers torn from them, and are then cast into the sea to perish, are enormous, and yet, it should seem, irremediable. Not so the disgusting barbarity, under the insane idea of *sport*, formerly, perhaps even now, practised in Scotland. These harmless fowls are hung up alive, by the legs, and savages, men and boys, ride at them full speed,

catching them, as they can, by the neck! And there can be no doubt that the horribly *pleasing* process of *roasting a goose alive,* as detailed by Dr. Kitchiner, in his *Cook's Oracle,* a book invaluable, equally to the gourmand and the economist, was actually practised in former days. Indeed, we have proofs innumerable, and utterly disgraceful to this enlightened nation, of the absolute necessity of amending the enthusiastic and indefatigable Martin's Bill, and rendering it completely comprehensive. It would have the effect of teaching men to *think and feel,* and to be convinced of the horrible and unnatural error of deriving pleasure from the racked and tortured feelings of other animals, endowed with feelings similar to their own. The present writer, upwards of thirty years since, led the way to the late Lord Erskine's and Mr. Martin's Bills; indeed was then, so far as he is informed, the first *practical* writer on the subject.

A writer in the *Monthly Magazine,* December, 1823, remarks humanely on the cruelty of plucking the living goose, proposing a remedy, which I should rejoice excedingly to find practicable and effective. He remarks on the additional torture experienced by the poor fowl, from the too frequent unskilfulness and want of dexterity of the operator—generally a woman. The skin and flesh are sometimes so torn as to occasion the death of the victim; and even when the fowls are plucked in the most careful manner, they lose their flesh and appetite; their eyes become dull, and they languish in a most pitiable, state, during a longer or a shorter period.

Mortality also has been periodically very extensive in the flocks of geese, from sudden and imprudent exposure of them to cold, after being stripped, and more especially during severe seasons and sudden atmospheric vicissitudes. There are many instances, in bleak and cold situations, of hundreds being lost in a single night, from neglect of the due precaution of comfortable shelter for as long a time as it may appear to be required. The remedy proposed, on the above authority, is as follows:—feathers are but of a year's growth, and in the moulting season they spontaneously fall off, and are supplied by a fresh fleece. When, therefore, the geese are in full feather, let the plumage be removed, close to the skin, by sharp scissors. The produce would not be much reduced in quantity, whilst the quality would be greatly improved, and an indemnification be experienced, in the uninjured health of the fowl, and the benefit obtained to the succeeding crop. Labour also would be saved in dressing, since the quilly portion of the feathers, when forcibly detached from the skin, is generally in such a state, as, after all, to require the employment of scissors. After this operation shall have been performed, the down from the breast may be removed by the same means.

The time has arrived, I trust, for successful exertions in the cause of compassion towards tortured and helpless animals; and I presume to make a serious call on the clergy and leading aristocracy of the districts implicated, for the exercise of their influence in this case, granting the reform to be practicable.

Goose dung is a very powerful manure, and a large flock would have considerable effect in fining and improving the grass of coarse meadow-land. Geese, as well as turkeys, it is well known, travel to the London markets; but it is not so generally known that goose-feeding, in the vicinity of the metropolis, is so large a concern, that one person feeds for market upwards of five thousand in the season. The best geese in England are, probably, to be found on the borders of Suffolk and Norfolk, and in Berkshire. Wild geese have not the superiority of the wild duck, tasting of fish, and being far inferior to the tame. The foreign fancy varieties of the goose are chiefly ornamental for lawns and waters, and as objects of curiosity.

A Goose on a farm in Scotland, about ten years since, of the clearly ascertained age of eighty-one years, healthy and vigorous, was killed whilst sitting over her eggs, by a sow; it was supposed she might have lived still many years, and her fecundity appeared to be permanent. Other geese have been proved to have reached the age of seventy years.

It will not prove tedious, I trust, to dilate yet awhile, in the anecdotal way, on this subject, though a goose. There is something extremely anomalous in the disposition of this apparently pacific and harmless species, which, nevertheless, possesses high courage, and is even naturally of pugnacious habits. I have seen two geese fighting and tearing each other with the utmost rage and virulence, as if determined to fight it out, *mordicus*, to death, whilst the gander stood looking on with the utmost apathy

and stupidity of unconcern. At St. Petersburg, in Russia, says Dr. Granville, they have no cock-pits, but they have a goose-pit!—where, in the spring, they fight ganders, trained to the sport, and so peck at each other's shoulders till they draw blood. These ganders have been sold as high as five hundred roubles each; and the sport prevails to a degree of enthusiasm among the hemp-merchants. Strange that the vicious and inhuman curiosity of man can delight to arouse and stimulate the principles of enmity and cruelty, in these apparently peaceful and sociable birds. There is, however, remarked to be a natural antipathy between the game-cock and gander. As another example of the native courage of this bird—several years past, some geese were feeding near Congleton, Cheshire, opposite the tithe-barn doors, having a sparrow for their companion. Suddenly, a hawk pounced upon the sparrow, when a gander flew to his relief, and laid the hawk prostrate.

It has been remarked by naturalists, that the goose and the eagle, to which should have been added the swan, are, as far as it is known, the longest lived of the feathered tribe; and, in addition to the instances above given of the longevity of the former, it is a well authenticated fact, that, in 1824, there was a goose living in the possession of Mr. Hewson, of Glenham, near Market Rasen, Lincolnshire, which was then upwards of a century old. It had been throughout that term in the constant possession of Mr. Hewson's forefathers and himself: and, on quitting his farm, he would not suffer it to be sold

with his other stock, but made a present of it to the in-coming tenant, that the venerable fowl might terminate its career on the spot where its useful life had been spent such a length of days.

The following singular trait of a sincere attachment to man, was communicated to me by a respectable correspondent of N. B. In March of the present year, 1829, Mr. Burnett, Craigellachie Inn, Elgin, had a goose nearly a year old, that formed so strong an attachment to him, as to follow him abroad through the crowd and bustle of the High-street. It would attend him to the hair-dresser's shop, and patiently wait till he was shaved, after which, accompanying him to the shop of another person, proceeding thence home with him, cheek by jowl. This affectionate bird never fails to recognize its master under whatever change of dress; knowing also his voice, though not seeing him; and no sooner does he speak, than it responds to him, in its own unintelligible dialect. Had Butler been aware of a faculty like the above in the goose, he probably would not have berhymed it to the following purport:—

> "Art has no enemies
> Next the ignorant, but owls and geese."

It is asserted that, at the great goose-feeders near London, the stock is fed upon the purest and best food, kept in the highest state of cleanliness, and that they are among the finest and best with which the metropolis is supplied. I can neither contro-

vert nor warrant this, but have no doubt but that the reader may depend on the following statement, with which I have been lately furnished by an eye-witness.

On the TREATMENT *of Geese, at the extensive Establishments of the feeders, in the vicinity of the Metropolis.*

"There cleanliness, punctuality, and regularity prevail: the business is conducted as it were by machinery, rivalling the vibrations of the pendulum in uniformity of movement. The grand object of preparing, not geese only, but poultry in general, for the market in as short a time as possible, is effected solely by paying unremitting attention to their wants; in keeping them thoroughly clean, in supplying them with proper food, (dry, soft, and green,) water, exercise-ground, &c. On arriving at the feeder's they are classed according to condition, &c.; they soon become reconciled to their new abode, and to each other. They are fed three times a day; and it is truly astonishing how soon they acquire the knowledge of the precise time; marching from the exercise-ground to the pens, like soldiers in close column.

"GOSLINGS, or young geese, come to hand generally about the month of March, after which, a regular and constant supply arrives weekly throughout the season. At first they are fed on soft meat, consisting of prime barley, or oatmeal; afterwards on

dry corn. An idea prevails with many, that any sort of corn will do for poultry; this is a grand mistake. Those who feed largely know better; and invariably make it a rule to buy the best: the Messrs. Boyce of Stratford, whose pens are capable of holding the extraordinary number of four thousand geese, independent of ducks, turkeys, &c., consume twenty coombs of oats daily, exclusive of other food. On walking round the premises of these gentlemen, in the spring of the present year (1829), the writer was shown above twelve hundred of that handsome bird the pintada, or guinea-hen, which unites, in some respects, the character of the pheasant and turkey, possessing the delicate shape of the former, and the bare head of the latter.

"From the improvement in our roads, and the consequent increased facility of communication, vast quantities of poultry are now fattened and killed in the country: the trade of the London feeder, therefore, has fallen off in a ratio corresponding with the increase of that of the provincial dealer; not that the public are benefited, or that the countryman derives more profit. The salesman steps in with a proffer of services; but he must be paid, and the money, of course, comes from the pockets of the public at large."

I shall only remark, on the conclusion of this valuable communication, that "the labourer is worthy of his hire," and that middle-men, or salesmen, are indispensable.

A GANDER and five geese comprise a single breed-

ing stock. The goose sits upon her eggs from twenty-seven to thirty days, covering from eleven to fifteen eggs. A nest should be prepared for her in a secure place, as soon as carrying straw in her bill, and other tokens, declare her readiness to lay. The earliness and warmth of the spring are the general causes of the early laying of geese, which is of consequence, since there may be time for two broods within the season, not however a common occurrence; and which happening successively for two or three seasons, has occasioned some persons, formerly, to set a high price upon their stock, as if of a peculiar and more valuable breed than the common. The method, however, to attain this advantage is, to feed breeding geese high throughout the winter, with solid corn, and on the commencement of the breeding season, to allow them boiled barley, malt, fresh grains, and fine pollard mixed up with ale, or other stimulants. In 1829, Mr. W. Holmes, of Spaldington Lanes, near Howden, Yorkshire, had a goose in his possession, which within the twelve months, laid seventy eggs; twenty-six at the usual time of incubation, from which she hatched and brought up seventeen fine goslings. She began to lay again at the end of harvest, and continued to lay every other day to the end of the year. She is still in high condition. Instances are said to have occurred of a goose laying upwards of one hundred eggs within the year.

With a good GANDER present, no mischief can happen to the sitting geese, without extraordinary alarm, he sitting sentinel at the chamber-door of his

wives. With respect to feeding the goose or duck upon the nest, it may be occasionally required, but is not a thing of much account, since they will generally repair to the water sufficiently often, from their natural inclination. The goose will not quit until she has completed her hatch, nor will it be very practicable to take any of the goslings from her, were it necessary, as she is too strong and resolute, and might kill some in the struggle.

It has been formerly recommended to keep the newly-hatched GULLS in house, during a week, lest they get cramp from the damp earth, to which they are indeed liable; but we did not find this in-door confinement necessary, penning the goose and her brood between four hurdles, upon a piece of dry grass well sheltered, putting them out late in the morning, or not at all in severe weather, and ever taking them in early in the evening. Sometimes we have pitched double the number of hurdles, for the convenience of two broods, there being no quarrels among this sociable and harmless part of the feathered race, so unlike those quarrelsome and murderous fiends, the common or gallinaceous fowls. We did not even find it necessary to interpose a parting hurdle, which on occasion may be always conveniently done. The FIRST FOOD similar to that of the duck, but with *some* cooling greens, clivers, or the like, intermixed—namely, barley-meal, bruised oats, or fine pollard.

For the FIRST RANGE, a convenient field containing water is to be preferred to an extensive common, over which the gulls or goslings are dragged by the

GOOSE, until they become cramped or tired, some of them squatting down and remaining behind at evening, which the good housewife sees no more. It is also necessary to destroy all the HEMLOCK or deadly night-shade, within the range of young geese, many of which drop off annually, from eating that poison, when the cause is not suspected. I know not that the elder geese will eat hemlock, but I believe that both the young and old have been occasionally killed by swallowing slips of YEW. The young becoming pretty well feathered, will also be too large to be contained or brooded beneath the mother's wings, and will then sleep in groups by her side, and must be supplied with good and renewed straw beds, which they convert into excellent dung. Being now able to frequent the pond, and range the common at large, the young geese will obtain their living, and few people, favourably situated, allow them any thing more excepting the vegetable produce of the garden.

It has, however, been my constant practice, always to dispense a moderate quantity of any solid corn or pulse at hand, to the flocks of store geese, both morning and evening, on their going out and their return, in the evening more especially, together with such greens as chanced to be at command: cabbage, mangold leaves, lucern, tares, and occasionally sliced carrots, and turnips. By such full keeping our geese were ever in a fleshy state, and attained a large size; the young ones were also forward and valuable breeding stock. It may be here necessary to state, that the German word *mangoldt*,

which is commonly anglicised *mangel*, signifies beet and *wurtzel* root. The latter word is then superfluous. We do not phrase it turnip *root* or carrot *root*. Thus much for the economy of words.

Geese managed on the above mode will be speedily FATTENED green, that is, at a month or six weeks old, or after the run of the corn stubbles. Two or three weeks after, the latter must be sufficient to make them thoroughly fat; indeed, I prefer a goose fattened entirely in the stubbles, granting it to have been previously in good case, and be full fed in the field; since an over-fattened goose is too much in the oil-cake and grease-tub style, to admit even the idea of delicacy, tender firmness, or true flavour. But when needful to fatten them, the feeding-houses already recommended are most convenient. With clean and renewed beds of straw, plenty of clean water, and upon oats crushed or otherwise, pea or bean-meal, the latter, however, coarse and ordinary food; or pollard; the articles mixed up with skimmed milk when to be obtained, geese will fatten pleasantly and speedily. Very little greens of any kind should be given to fattening geese, as being too laxative, and occasioning them to throw off their corn too quickly; whence their flesh will prove less substantial and of inferior flavour. Greens are the more proper food for store geese.

I know nothing of the imposthume, said by our elders to grow upon the rump of the feeding goose, and through which she perpetually, like a bear, sucks her own fat, and which excrescence thence

must needs be exsected. Nor am I, however ardently attached to the writings of antiquity, sufficiently classical, or a *gourmand* of sufficient taste and calibre, to rival those of ancient Rome, in the size of their goose LIVERS. I have thence never fed my geese, during sixteen days, with a paste of Turkey figs, stamped and beaten up with cream, in order to bring their livers upon the table, each the weight of three or four pounds! I modestly leave such practices to princes, ministers, and men in high place. It may be added, that, equal quantities of the meal of OATS, RYE, and PEASE, mixed with skimmed milk, form an excellent feeding article for geese and ducks.

The SPANISH geese used to be preferred, but I have had no experience in them. Our flocks, whilst we resided in Middlesex, in the year 1788, were esteemed the finest in the vicinity; the breed of them had been procured for us, from the neighbourhood of Bungay, in Suffolk, by Goff, the dealer, already spoken of. Formerly, the *Embden* geese were in the highest esteem. They are all white, male and female, and of a superior, indeed, very uncommon size. Whether or not, as might be expected, there be a countervailing objection in a corresponding whiteness, and thence defect of savoury flavour in the flesh, I am unable to say, having yet had no experience in the Embden variety of geese. The Egyptian or African goose is described as a very beautiful bird, more known formerly in this country than at present. Two of them were lately shot in Scotland. Whether their merit consists in mere ornament, or in their use for the table, does not seem to have been hitherto ascertained.

The Swan.

The SWAN. Exclusive of ornament, the chief use of the swan is to clear pieces of water from weeds, a service which was effected some years since by swans, over a considerable breadth of water, at Clumber, the residence of the Duke of Newcastle, in the course of a year or two; but they are generally reputed great destroyers of the young fry of fish.

It is to the Marquis of Exeter, that the public are indebted for the singular discovery, that swans preserve ponds free from weeds. There is a sheet of water at Burghley, about a mile in length, which used to be so overrun with weeds, that three men were constantly employed six months in every year to keep

them under. In 1796 the Marquis put two pair of swans on the water. They completely cleared away the weeds the first year, and none have since appeared, as the swans eat them before they rise to the surface. In the Low Countries, swans are kept for the same purpose.

The antiquity of this delicate and stately bird, the silent swan, is conspicuous in the pages of history and of poetry. The prototype of the domesticated breed has been probably lost in the lapse of time, since the wild swans of all countries differ essentially both in plumage and organic structure, from the tame. The longevity of the swan seems to equal, if not exceed, that of any other animal, as it is said to live three centuries, a fact, which it seems strange, and is to be regretted, has not been correctly ascertained in some of our great families of old, so extremely attached to this noble bird. Hence I beg leave to recommend to the keepers and amateurs of the swan, to open a stud-book, wherein a sufficient number of individuals may be named and marked; and even that extracts may be introduced into the wills of present and succeeding proprietors, that our posterity may be better informed on this branch of natural history than ourselves. They are chiefly to be found upon the Thames, and probably also, as in former days, on the inlet of the sea near Abbotsbury, Dorset, and in the river Trent. Upon the Avon, in Warwickshire, however, as I am informed by a late sojourner in that vicinity, wild swans are frequently seen; they are in colour white and grey, and in size smaller than the

domesticated. They are occasionally to be met with in the London markets of Leadenhall and Newgate, the asking price at present five shillings each. Their skins only are used. Fifteen wild swans were shot, January, 1830, by one man, in Shoreham harbour, and sold to the furriers at five shillings each. Their flesh is no longer in request as food, with the exception of cygnets, or young swans, which are still fattened, at Norwich particularly, for the Christmas feast, and command the price of one guinea each.

The swan feeds like the goose, and has the same familiarity with its keepers, kindly and eagerly receiving bread which is offered, although it is a bird of courage equal to its apparent pride, and both the male and female are extremely dangerous to approach during incubation, or whilst their brood is young, as they have sufficient muscular force to break a man's arm with a stroke of their wing. They both labour hard in forming a nest of water plants, long grass and sticks, generally in some retired part or inlet of the bank of the stream or piece of water on which they are kept. The hen begins to lay in February, producing an egg every other day, until she has deposited seven or eight, on which she sits six weeks, although Buffon says it is nearly two months before the young are extruded. Swans' eggs are much larger than those of a goose, white, and with a hard, and sometime stuberous shell. The cygnets are ash-coloured when they first quit the shell, and for some months after; indeed, they do not change their colour, nor begin to moult their plumage, until twelve months

old, nor assume their perfect glossy whiteness until advanced in their second year.

I have been taken to task by certain instructors, on the score of appellatives appropriate to the swan. In their opinions it seems, that the terms COCK and HEN, applied to the swan, are objectionable, more especially cock, as homely and impolite. They prefer *male* and *female*. *Bien donc*, I have not the slightest objection to accommodate my worthy critics—male and female let it be. Having proceeded this length, in order to give satisfaction if possible, I have now to state the little I know further of this matter, which is, that, in the regular professional slang, they are styled COB and PEN, as designating the sexes of the swan. I now say to every adept, *utrumve mavis*. As to the homely and equivocal term, *cock*, I regret to be compelled to observe, that I really know not how we shall be able to rid ourselves of it, more especially in proper names.

The CYGNOIDES from Guinea, commonly called the SWAN-GOOSE, or the MUSCOVY-GOOSE, a sort of middle species between the swan and the goose, is sufficiently plentiful in Britain, and unites so well with the common goose, according to report, as to cause little or no perceptible difference in the progeny. They are distinguished by their erect gait, and the screaming which they continue during almost the whole day, without any obvious incitement.

The BLACK SWANS of New Holland I have not hitherto had the opportunity of seeing. They were introduced into this country some years since, but I

believe the number bred or remaining is very small. They are said to degenerate here as to size, yet the imported individuals, it seems, were not larger than our indigenous breed. There is said by naturalists, to be some disparity between the wild and tame black swan, in respect to the bill and organization of the bones. Thence, probably, they form different species of the same genus.

Swans wandering by night, in search of water-cresses chiefly, are always in danger from the different vermin which prey upon poultry and game—weasels, stoats, pole-cats, &c. And swans thus destroyed, exhibit no wounds or marks upon the body, but upon the head and neck, where, on a minute inspection, the wounds are discovered through which the vermin have sucked the life-blood, leaving the bulk so little affected that the feathers are unruffled. The wounds given by the sharp and long teeth of the vermin, appear scarcely the size of a pin's head, but are generally above half an inch deep. Geese and turkeys are also liable to be destroyed by these nocturnal marauders, which, like all beasts of prey, sleep throughout the day. Our readers, generally, have heard of the Royal Swan hopping or dancing annually, in August, up the Thames, as far as Oxford, the ancient bounds, by the Lord Mayor of London and his attendants, the appointed conservators of the royal birds. Particular officers are appointed, and their deputies chosen, by whom the birds are marked on the bill, with a number of cross bars, formed in a diamond shape. According to the established regulation, when too many

THE PEACOCK.

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swans have flocked to a particular part of the river, they are caught and put into boats, and thence distributed to other parts.

Pea and Guinea Fowls, and Pheasants.

The PEA COCK and HEN, and GUINEA FOWLS, are always kept by the London dealers, whence any person in the country may be supplied with breeding stock. Exclusive of the consideration of ornament to a poultry yard, the peacock is very useful for the destruction of all kinds of reptiles; but at the same time some peacocks are said to be vicious, and apt to tear to pieces and devour young chicks and ducklings, suffered to be within their reach. They are also destructive in a garden.

This most beautiful of all the feathered race is supposed to have been originally a native of India, and peacocks are said to be at present found in a wild state upon the islands of Java and Ceylon. The history of king Solomon is a voucher for the antiquity of the peacock, and also the choice of the goddess Juno, who selected this for her favourite bird, from its gorgeous and brilliant plumage, and majesty of demeanour. It is asserted by the ancient writers that the first peacock was honoured with a public exhibition at Athens; that many people travelled thither from Macedonia, to be spectators of that beautiful phenomenon, the paragon of the feathered race. It is probable the ancients, as well as the moderns, introduced the peacock upon the table, rather as an ornament than a viand. There are varieties of this bird, some white; they perch on trees

like the turkey. Their age extends to twenty years, and at three the tail of the cock is full and complete. The cock requires from two to four hens, and where the country agrees with them, they are very prolific. They are granivorous, like other domestic fowls, preferring barley. The pea-hen, like the turkey, sits a month.

The PINTADO, or Guinea Hen, has been said to unite the character and properties of the pheasant and the turkey. It is about the size of the common hen, but standing high upon its legs gives it the appearance of a larger size. The back is round, with the tail turned downwards, like the partridge. It is an active, restless, and courageous bird, and will even attack the turkey, although so much above its size. The Guinea fowls assimilate perfectly with the common species in habits and in kinds of food; but have this peculiarity, that the cocks and hens are so nearly alike, it is difficult to distinguish them. They have also a peculiar gait and cry, or chuckling. The head is covered with a kind of casque, with wattles under the bill, and the whole plumage is either black or dark grey, speckled with regular and uniform white spots. The pintado is generally supposed to be a native of Guinea, whence its additional name; but it is in equal plenty in America. In those countries it perches on trees, and in the wild state, makes its nest in the holes of the palm-tree. It is gregarious, and often found in large flocks. Like the peacock, it may be said to be universally domesticated.

There is sometimes, but not invariably, a distinction of colour in certain parts, between the cock and

hen pintado; the manner and gait of the cock, however, soon distinguish him. However long domesticated, these birds retain some part of their original wild habits, and will stray in search of a place in which to drop their eggs, without any apparent solicitude as to their security. They lay an abundance of eggs, smaller than those of the common hen, speckled, resembling wild, rather than common eggs. It sometimes happens that they are everlasting layers, in which case, and indeed generally, it is most profitable to hatch pintados under a common hen, which will cover an additional number of those small eggs. The chicks are extremely tender, and should not be hatched too early in the spring; a sudden change of the wind in March, to the N.E., has destroyed many a brood of them.

SECTION XII.

Pheasants.

I ACKNOWLEDGED myself obliged to Mr. Castang, formerly of the Menagerie in the Hampstead Road, near Tottenham-Court Road, London, for several novel particulars in the additions to the first edition of this work, which particulars are now arranged under their proper heads. I have been since under a further obligation to the same intelligent and experienced person, on the subject of pheasants, with which my own practical acquaintance has not hitherto been very extensive.

The PHEASANT *(phasianus)* is a native of the old continent, and supposed by ancient authors to have been originally found on the banks of the PHASIS, whence the name was probably derived. The Argonauts, in their celebrated expedition to *Colchis*, together with the golden fleece, brought back with them the Asiatic pheasant, the plumage of which was equally rich and resplendent with the fleece. Authors, however, differ on this point of ancient history; a discrepancy of no material consequence here. This bird, indeed, may well vie with the peacock, if not for gaudiness, yet for the richness, variety, and sober majesty of its colours, and for the beautiful symmetry of its form; and when Crœsus, king of Lydia, was seated on his throne, adorned with royal magnificence, and all the blazing pomp of Eastern splendour, it is recorded that he asked Solon whether he had ever before beheld so much finery. The Greek philosopher replied, he had seen the beautiful plumage of the pheasant, and had found nothing superior.

The pheasant is not a long-lived bird; but it is probable the PERIOD OF EXISTENCE assigned to it by some writers, namely, six or seven years, is too short. The wholesomeness of its flesh was proverbial among the old physicians; it is of a high flavour and alkalescent quality, and in perfection during autumn. A young pheasant very fat is reckoned an exquisite dainty. In a wild state, the hen LAYS from eighteen to twenty eggs in a season, but seldom more than ten in a state of confinement. Pheasants are not to be tamed by domestication,

like other fowls; nor is the flesh of those brought up in the house, in any degree comparable to that of the wild pheasant: thence they are bred at home, either merely for show, or for the purpose of replenishing the proprietor's grounds, both with regard to number or particular varieties. However good nursing mothers in a wild state, pheasant hens are far otherwise in the house, whence their eggs are almost always HATCHED at home by the common hen, generally, at present, by the smooth-legged BANTAM.

Certainly the pheasant hen, barring the above objection, would be far the more eligible, on all accounts; in particular, from her ability to cover a greater number of eggs, and her being the natural mother of the young brood. For partridges' eggs, the bantam hen is the proper domestic sitter, or rather, the only one. When the eggs of these birds are found deserted in the mowing season, it is quite natural for the finders and proprietors to desire to get them hatched, which is far the easiest part of the business; the difficulty lies in preserving the young broods during the first few weeks, as they cannot with safety be trusted at large, with the hen, like chickens.

The above particulars on the laying and habits of the pheasant, were derived from the experience of a number of breeders and fanciers of the bird, and to a certain degree of that of the author. It is probable they may yet be found *generally* correct. The author, however, records with pleasure a notable *exception;* at the same time wishing it may cease to form an exception. During the season of 1822, Mr. Lightfoot of Harlow Hill, near Northum-

berland, kept a brace of pheasants, in a domesticated state. The hen laid the surprising number of seventy-four eggs. A gentleman at Birmingham, also, has a wild hen pheasant in his garden, the hen laying. They are familiar with their feeders, but cannot bear the sight of a stranger. In 1826, a solitary cock pheasant made his appearance as far north as a valley of the Grampians, being the first that had been seen in that northern region.

Charles Waterton, Esq. of Walton Hall, has given an article on pheasants in the Magazine of Natural History. In his opinion this bird, from its apparent domestic habits, ought no longer to be deemed game, *fera naturâ*, but to be liberated and classed with domestic poultry. This, however, is of small consequence to the public, since the demand for pheasants is so amply supplied, and materially on account of the superiority in quality of the wild pheasant. The pheasant *crows* at all seasons on retiring to roost, repeating the call often during the night, and at early dawn; frequently also in the day time, on the appearance of an enemy, the report of a gun, or during a thunder-storm. Mr. W. is of opinion that the pheasant does not pair. (This is probable, but not exactly ascertained.) The hen lays from seven to eighteen eggs; in general, the nest contains about twelve. This writer observes, that it would be impossible to retain a breed of pheasants in the country, without the security of preserves to a moderate extent; at the same time, without equal rationality and public spirit, declaring against the barbarity, folly, and extravagance of the *battu*, to which he observes, that the danger to be incurred

and the odium to be borne, are mighty objections, concluding with the following patriotic sentiments:—"We read, that the ancients sacrificed a cock to *Æsculapius:* perhaps the day is at no great distance when it will be considered an indispensable act of prudence for the country gentleman to offer up his last hecatomb of pheasants at the shrine of public opinion." The pheasant once disturbed from his roost, never perches again during the remainder of the night, but takes refuge among the grass, or underneath the hedges, where he falls an easy prey to the cat, the fox, or the stoat. The pheasant prefers the larch to any other tree, the larch suiting pheasants admirably for roosting, on account of its branches growing nearly at right angles from the stem, which renders the seat of these birds very easy. According to Mr. W's. actual experience, *smoking* pheasants is an idle story. Smoke will not bring the birds down. It is supposed that many pheasants are poisoned in the wheat seed season, by picking up grains of wheat which have been dressed by the farmers with arsenic. This paper, to which, I can now do nothing beyond a reference, contains much useful and really practical information on its subject, on poachers, and various other matters of rural and sporting concern. It appears to me, that the cock pheasant never pairs but from necessity, having only one hen. But I found it impossible to tempt the pheasant to pair with a common hen, perhaps had two or three been allowed, it might have succeeded.

The natural NEST of the pheasant is composed of dry grass and leaves, which being provided for her

in confinement she will sometimes properly dispose. The cock is bold, voracious, and cruel; and one which I had many years ago, caught a canary bird which had accidentally escaped, and was observed with it beneath his talons, in the proper attitude of the hawk, tearing it to pieces and devouring it. Pheasants have been seen preying upon a dead carcase, in company with carrion crows, and it has been said that they will fall upon a diseased and weak companion of their own species, and devour it. They feed upon all kinds of insects and vermin, like the peacock, and are said to be particularly greedy of toads, provided they be not too large to swallow; whereas, according to report, they will not touch the frog, of which ducks are so fond. A pheasant was shot by T. Day, Esq. of Herts, the crop of which contained more than half a pint of that destructive insect the wire-worm. and the number of 1606 grains of barley were taken from the crop of a pheasant at Bury in Suffolk, in 1727.

The progeny between the pheasant and the common fowl, are necessarily MULES, as proceeding from different species, although of the same genus. They may be obtained, with some little difficulty, which they scarcely repay, as being neither an improvement in form nor goodness of the flesh. It is recommended, as the best method, to confine a cock-pheasant half grown with two pullets of the same age, either game, bantam, or common, as may be desired: or make a house for common hens in a pheasant preserve near home, where they will

soon associate with the pheasants, and be trodden by the cocks. Hybrids, or mules, between the pheasant and black grouse, have been occasionally found on the moors. Hybrids, an exception to Nature's ordinary rule, will occasionally procreate.

The best known VARIETIES of the pheasant, are the GOLDEN, the SILVER, the PEACOCK or SPOTTED, and the COMMON EUROPEAN or ENGLISH, generally brown, with a less brilliancy of colouring. Mr. Castang, however, enumerates six distinct varieties, exclusive of the common, as follow: the GOLD and SILVER, natives of China, and very hardy in this country, and good breeders. The RING-NECKS, natives of Tartary, bred in China, very scarce; their plumage very beautiful. The WHITE and PIED; both sorts will intermix readily with our common breed, as will the BOHEMIAN, one of the most beautiful of its kind, and equally scarce. The GOLDEN variety is generally of the highest price, the common most hardy, and of the largest size.

Instructions for breeding Pheasants. By P. CASTANG, *Son-in-law and Manager to the late* JOSHUA BROOKS.

EGGS being provided, put them under a hen that has kept the nest three or four days; and if you set two or three nests on the same day, you will have the advantage of shifting the good eggs. At the end of ten or twelve days, throw away those that

are bad, and set the same hen or hens again, if sitting hens should not be plenty.

The hens having sat their full time, such of the young pheasants as are already hatched put into a basket, with a piece of flannel, till the hen has done hatching.

The brood, now come, put under a frame with a net over it, and a place for the hen, that she cannot get to the young pheasants, but that they may go to her: and feed them with boiled egg cut small, boiled milk and bread, alum curd, ants' eggs, a little of each sort, and often.

After two or three days, they will be acquainted with the call of the hen that hatched them, may have their liberty to run on the grass-plot, or elsewhere, observing to shift them with the sun, and out of the cold winds; they should not have their liberty in the morning till the sun is up; and they must be shut in with the hen in good time in the evening.

Every thing now going on properly, you must be very careful (in order to guard against the distemper to which they are liable) in your choice of a situation for breeding the birds up; and be less afraid of foxes, dogs, pole-cats, and all sorts of vermin, than the *distemper*. I had rather encounter all the former than the latter: for those with care may be prevented, but the distemper once got in is like the plague, and destroys all your hopes. What I mean by a good situation, is nothing more than a place where no poultry, pheasants, or turkeys, &c. have ever been kept; such as the warm side of a

field, orchard, pleasure-ground, or garden, or even on a common, or a good green lane, under circumstances of this kind; or by a wood side; but then it is proper for a man to keep with them under a temporary hovel, and to have two or three dogs chained at a proper distance, with a lamp or two at night. I have known a great number of pheasants bred up in this manner in the most exposed situations. It is proper for the man always to have a gun, that he may keep off the hawks, owls, jays, magpies, &c. The dogs and lamps intimidate the foxes beyond any other means; and the dogs will give tongue for the man to be on his guard, if smaller vermin are near, or when strollers make their appearance.

The birds going on as before mentioned, should so continue till September or even December, or (if very early bred) the middle of August. Before they begin to shift the long feathers in the tail, they are to be shut up in the basket with the hen regularly every night; and when they begin to shift their tail the birds are large and begin to lie out, that is, they are not willing to come to be shut up in the basket: those that are intended to be turned out wild, should be taught to perch (a situation they have never been used to); this is done by tying a string to the hen's leg, and obliging her to sit in a tree all night: be sure you put her in the tree before sun-set; and if she falls down you must persevere in putting her up again till she is contented with her situation; then the young birds will follow the hen and perch with her. This being done, and the country now covered

with corn, fruits, and shrubs, &c. &c. they will shift for themselves.

For such young pheasants as you make choice of for your breeding stock at home, and likewise to turn out in spring following, provide a new piece of ground, large and roomy, for two pens, where no pheasants, &c. have been kept, and there put your young birds in as they begin to shift their tails. Such of them as you intend to turn out at a future time, or in another place, put into one pen netted over, and leave their wings as they are; and those you wish to keep for breeding put into the other pen, cutting one wing of each bird. The gold and silver pheasants you must pen earlier, or they will be off. Cut the wing often; and when first penned, feed all your young birds with barley-meal, dough, corn, and plenty of green turnips.

A Receipt to make Alum Curd.

TAKE new milk, as much as your young birds require, and boil it with a lump of alum, so as not to make the curd hard and tough, but custard like.

N. B. A little of this curd twice a day, and ants' eggs after every time they have had a sufficient quantity of the other food. If they do not eat heartily, give them some ants' eggs to create an appetite, but by no means in such abundance as to be considered their food.

The DISTEMPER, alluded to above, is not improbably of the same nature as the roup in chickens, contagious, and dependent on the state of the

weather; and for prevention requiring similar precaution.

General directions. Not more than four hens to be allowed in the pens to one cock. And in the out covers, three hens to one cock may be sufficient, with the view of allowing for accidents, such as the loss of a cock or hen. Never put more eggs under a hen than she can well and closely cover, the eggs fresh and carefully preserved. Short broods to be joined and shifted to one hen: common hen pheasants in close pens, and with plenty of cover, will sometimes make their nests and hatch their own eggs; but they seldom succeed in rearing their brood, being so naturally shy; whence, should this method be desired, they must be left entirely to themselves, as they feel alarm even in being looked at. Eggs for sitting are generally ready in April. Period of incubation the same in the pheasant as in the common hen. Pheasants, like the pea-fowl, will clear grounds of insects and reptiles, but will spoil all wall-trees within their reach, by pecking off every bud and leaf.

Feeding. Strict cleanliness to be observed, the meat not to be tainted with dung, and the water to be pure and often renewed. Ants' eggs being scarce, hog-lice, ear-wigs, or any insect may be given; or artificial ants' eggs substituted, composed of flour beaten up with an egg and shell together, the pellets rubbed between the fingers to the proper size. After the first three weeks, in a scarcity of ants' eggs, Castang gives a few gentles, procured from a good liver tied up, the gentles, when ready, dropping into a

pan or box of bran: to be given sparingly, and not considered as common food.

Food for grown pheasants, barley or wheat; generally the same as for other poultry. In a cold spring, HEMP SEED, or other warming seeds, are comfortable, and will forward the breeding stock.

Of the Noblemen and Gentlemen who have PRIVATE MENAGERIES for pheasants, and who are large breeders, Lord Braybrook, at Audley End, Essex, and the Earl of Jersey, at Osterley Park, Middlesex, are among the most eminent. At a park in Middlesex, seven or eight miles beyond Bushy Park, I saw, many years ago, a greater collection of pheasants and partridges than I had ever before, or have since witnessed. There are also pheasant breeders who make a trade of it, rearing two or three hundred in a season. It was formerly held impracticable to breed any considerable number of these birds, on the supposition that they could not be reared on any other food than ants' eggs, of which a sufficient plenty could never be depended on; but in all probability, those already recommended are very sufficient substitutes.

The following information was lately communicated to the author, by a landed Gentleman of Scotland, his respected friend. "About fifty years ago the Pheasant was introduced into the south-east county of Scotland, which, for climate, shelter, and food, is perhaps the best: within the last twenty years, several gentlemen have attempted to naturalize it in the counties Fife and Forfar, north of the great estuary of the Forth. The experiment has

succeeded completely, for few estates are better stocked with pheasants than those of Raith, Wemyss Castle, and Dunnikin, in Fifeshire; or Rosse Priory. and Brechin Castle, north of the river Tay. The Earl of Fife has stocked his estates in Banffshire, and even so far north the pheasant thrives well. In the west of Scotland I am not informed that the pheasant has yet been tried beyond Ayrshire, where, however, it abounds on the estates of the Earls of Eglinton and Cassilis. It is almost needless to mention, that pheasants will abound no where without winter feeding; in Scotland this perhaps more particularly than in England: because, although the former country may be well wooded by plantations, there is very little natural wood, and of course underwood is scarce. The berries and insects that underwood affords are great sources of support to the pheasant. The pheasant, the turkey, and even our common cocks and hens, thrive best on a mixture of corn, wild seeds and insects. The winter feeding of pheasants in Scotland, is confined to throwing into their resorts sheaves of oats.

The above highly esteemed and valued friend of the author, Gilbert Laing Meason, Esq. of Lindertis by Kirriemuir and of Edinburgh, died this year (1833,) at Venice, where he was temporarily residing with his family, leaving an amiable and highly accomplished widow, allied to several families of distinction in Scotland, and their eldest daughter, universally respected and beloved by their friends and acquaintance, with also a somewhat large juvenile family. This gentleman was brother of the late Malcolm Laing, Esq.,

M. P.; the historian and the political and literary associate of Mr. Charles Fox. Malcolm Laing, whose memory will ever be dear to the author, was a man of the most benevolent, placid, and considerate character, who ruined his health and shortened his existence by a continued intense application to those laborious and time-consuming researches which so few have the ardour, resolution, and perseverance to engage in.

Nearly at the same period (1833), died the Rev. William Barker Daniel, author of "Rural Sports," a work of great merit and equal celebrity, and which, both as a useful and ornamental book, will reach posterity, more especially in the libraries of those interested in the subject. Daniel was an Essex man, a countryman and townsman of the present writer, who, from early youth, well knew him and his family. He was a nephew of Lady Barker, the reputed *chère amie* of the Culloden Duke of Cumberland. The deceased had originally a sufficient estate, and resided in his native county, until either imprudence or misfortune located and fixed him in *banco Regis* for the remainder of his life, a term extending, as I recollect, to about forty years. His age was probably given somewhat incorrectly in the newspapers: I think it must have extended several years beyond fourscore.

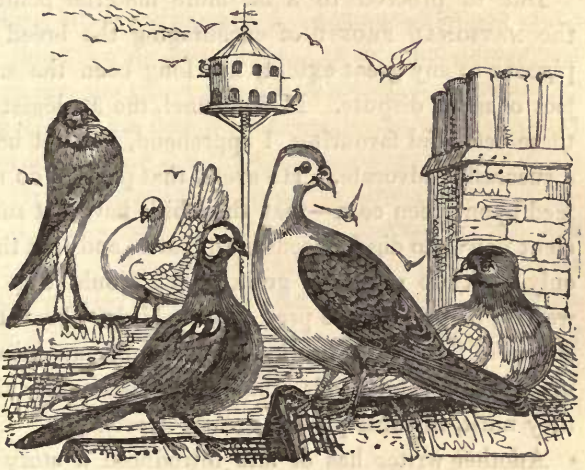
My acknowledgments for a variety of information are due to Mr. Herring, of the Menagerie, New Road. His establishment is of the first character and extent for poultry of all kinds, land or aquatic, whether domestic or foreign; pigeons, parrots, singing-birds, deer, dogs; in short, for every species of useful or curious and ornamental stock, necessarily the objects

of our nobility and gentry at their country-seats. Also to Mr. Burgess, jun., a respectable poulterer of Marchmont Street, Burton-Crescent, for much information in his line.

According to intelligence received in the latter end of November 1833, the *cholera* among the poultry had lately broken out in the Grand Duchy of Posen, in Germany; geese, ducks, and poultry of all descriptions, seized by the disease, fell down suddenly, and expired, evacuating a milky fluid. The colour of the body immediately turns to a deep blue, and the liver is always found diseased. On the frontiers of Poland a murrain prevails among the cattle.

SECTION XIV.

Pigeons.



THE PIGEON is recorded as one of the most ancient inhabitants of all climates, those excepted in the vicinity of the poles; it prospers abundantly in temperate regions, but in a still higher degree under the burning sun of the tropics, no heat being too ardent for its natural constitution. The wild pigeons of cold countries are said to emigrate towards the south on the approach of the winter. Pigeons exhibit a satisfactory proof of the superiority of the civilized over the savage or mere natural state, in their multitudinous increase and endless varieties in a state of domestication, under the fostering care and all-subduing

art of man. From their peculiar beauty and innocence, they have always ranked among the chief feathered favourites of mankind; and in the eastern countries, the original sources of religious superstition, the dove has ever been a great object of veneration, as an emblem of something divine.

But to proceed to a far more material point—the NATIONAL PROFIT of encouraging the breed of pigeons to any great extent, has long been the subject of much dispute. M. Duhamel, the apologist of these beautiful favourites, I apprehend, has not been a successful advocate. He avers, that pigeons do not feed upon green corn—that their bills have not sufficient power to dig for seeds in the earth, and that they only pick up scattered grain which would else be wasted, or become the prey of other birds. From the season of the corn appearing, he says, pigeons subsist upon the seeds of weeds, the multiplication of which they must, in consequence, greatly prevent.

Another writer has of late introduced a story of the farmers of a certain district in England, who, finding their corn and pulse crops greatly reduced, attributed it to the vast quantity of pigeons kept among them, which, on such account, by a general resolution they agreed to destroy. A few seasons afterwards, it seems they found their land so exhausted, and their crops so eaten up with weeds, that they came to a general wish for their pigeons back again. Now this is either a lame story, or the farmers implicated were very lame farmers, as being ignorant how to weed their land, without the assistance of instruments, the use of which must cost them

so considerable a part of their crops. Last year, a farmer in Kent shot a wood-pigeon, from the crop of which he extracted nine hundred and twenty-six clavels of wheat, which he sowed, and obtained from them a harvest of one gallon three quarts of fine wheat.

No man, in the least acquainted with country affairs, but is fully aware of the immense damage done to the crops of corn, beans, pease, and tares, that is to say, the grand articles of human subsistence, by pigeons. Our best practical agricultural writers may be consulted on this head, but a sufficient proof of the fact is the reduction of dove-cots throughout all countries where agriculture is best known, valued, and practised. Indeed, the feudal laws in favour of these birds were a most cruel and fertile source of oppression. Every one will judge for himself of the degree of credit to be given to the following statement, extracted from Mr. Vancouver's valuable survey of the county of Devon.

Pigeons often fly to a great distance for their food, and when they can find corn to eat, seldom prey upon any thing else. They begin to eat corn about the middle of July, and rarely want the same food at the stacks in the straw-yards, or in the fields, until the end of barley sowing, which is about old May-day, and which includes a period of two hundred and eighty days, or better than three quarters of the year; the rest of the time they live upon the seeds of the weeds and bentings. It is somewhere stated, that in England and in Wales there are twenty thousand DOVE-HOUSES, averaging each at

about one hundred pair of old pigeons. We will take this estimation at three-fourths, which will equal one million one hundred and twenty-five thousand pairs of dove-house pigeons in England and Wales. These, to speak moderately, will consume, with what they carry home to their young, one pint of corn per pair daily, and which, for one hundred and forty days, being half the period they are supposed to subsist upon corn, amounts to one hundred and fifty-seven millions five hundred thousand pints of corn consumed annually, throughout England and Wales, by these voracious and insatiate vermin, for in no other light can they be considered by the agriculturist.

The amount and value of this consumption, when brought into the present price of wheat, rye, barley, oats, beans, and pease, and assuming that an equal quantity of each corn is thus consumed, but which is far from being the case, as wheat is not only the most inviting but by far the most exposed to the ravages of these birds, both at the seed time and preceding harvest, will stand thus—157,500,000 pints—4,921,875 Winchester bushels, which at 6*s.* per bushel, the present average price of the grain before enumerated, amounts to £1,476,562. 10*s.* value of the agricultural produce of the country consumed in this manner. To which is to be added, the irreparable injury committed by pigeons in seed time, by picking up every grain of seed, wherever they alight, and the corn trod under and beaten out by their wings before harvest, not to forget the real damage they do to buildings, by pecking the mortar

from between the bricks, a mischief which may, however, always be obviated by the constant allowance of a SALT-CAT, which will also take their attention from the garden, to which they may be otherwise destructive.

On a general view of the subject, it appears that the dove-house system has ever been one of extreme injustice, as well as impolicy, in point of national advantage; for in the first respect, it must unavoidably happen, that great flocks must be maintained at the expense of persons having no property in them. But as, certainly, neither the public nor individuals will consent to be deprived of the enjoyment of this ancient luxury, the fairest mode appears to be, the regular feeding of pigeons by their proprietors, which, according to my experience, so attaches them to home, that there is often a necessity of driving them out for exercise. This plan should, of course, be more punctually observed in seed time, and towards the approach of the corn crops to maturity. With respect to the risk of damage from pigeons, which must unavoidably be incurred by the farmer, his insurance must consist in that vigilance, in which generally he is too defective.

Buffon enumerates upwards of thirty VARIETIES of the pigeon, which, according to his usual systematic plan, its convenience perhaps being rather more obvious than its accuracy, he derives from one root, namely, the STOCK-DOVE, or common wild pigeon. All the varieties of colour and form which we witness, he attributes to human contrivance and fancy. There exist, nevertheless, essential specific

differences in these birds, which seem rather attributable to the nature of the region, soil, or climate, to which they are indigenous, than to the art of man.

The STOCK-DOVE, or original of the pigeon genus, in its natural or wild state, is thus described; of a deep blue and ash colour, the breast darkened with a fine changeable green and purple; the sides of the neck of a reddish gold colour; its wings marked with two black bars, one on the quill feathers, and the other on the covert; the back white, and the tail barred near the end with black. The RING-DOVE is yet held by naturalists to be distinct from the stock-dove, and it would seem that the TURTLE-DOVE is equally so from both.

In this country the BLUE DOVE-HOUSE PIGEON is the most common, and the only WILD SPECIES are the ring-doves, or wood-pigeons, and the turtle-doves, which are to be found in all parts of South Britain, breeding during the spring and summer, and retiring to the deepest recesses of the woods in the winter season, whence, probably, the turtle has been supposed to emigrate. I am assured by a Spanish gentleman, that in Barbary they have pigeons equal in size to fowls, but incapable of flight.

On the domain of Warwick castle, there is, perhaps, a greater number of turtle-doves, than in any other part of Britain. They abound in multitudes throughout the woods and plantations (1829), flying in pairs, and lighting on the turrets of the castle. Their loud and mournful cooing is heard on the road at a considerable distance. Much pains have

been taken, hitherto ineffectually, to reduce their numbers. Among the splendid antique curiosities of this mansion of high aristocracy, visitors do not forget that living antique the house-keeper, who is said to have advanced upon the date of one hundred years.

WOOD-PIGEONS. The autumnal markets in the metropolis and in most large towns, generally exhibit a considerable supply of these birds. They assemble in large flocks for the night in thick coverts, perching on the middle branches and the tops of the oaks. Windy and boisterous evenings in November are most appropriate to the sport of shooting wood-pigeons, which always roost with their faces to windward, and the gunners guardedly approaching behind them, hidden by the remaining foliage, and aided by the murmuring of the wind, obtain a fair chance of success, though the ring-dove is particularly shy and watchful. This is a sport for a company of gunners, each choosing a different stand in the twilight, by which plan, taking the birds sitting or flying, the bags may be well filled. As the game is large, short guns and heavy shot are the best adapted. The flesh of the wood-pigeon is in perfection in the latter summer and the autumnal months, from their ability in those seasons to obtain the best food. During winter, feeding on coleworts or any green food they can find, their flesh is loose and bitter. From their large size, which would be increased by domestication, the experiment might be successful. At Pamber House, Hants, there had been, immemorially, an annual nest of wood-pigeons in a

large yew-tree, said to be three centuries old, which grew in the garden within a few yards of the house. We seldom saw the old birds, which used the utmost vigilance. We were well supplied with them from the neighbouring forest. In 1827, immense flocks of wood-pigeons, to the computed number of two thousand in one field, were seen upon the lands near Chichester. Sir H. Fisher's keeper killed sixty couple in one day.

But both in the ancient and modern world, this beautiful and variegated genus of birds has been cherished by man as a source of amusement, and of gratification to the eye, as well as of profit, in the article of provision for the table. Among certain of the nations of antiquity, moreover, pigeons were held sacred, and their lives no one dared assail. The useful qualification of MESSENGER, appertaining to the Asiatic and African species of the pigeon, is of high antiquity: and we read in the time of the Crusades, of an Arabian prince, who had a sort of telegraphic communication kept up in his dominions, through the instrumentality of pigeons, which carried letters, and were regularly relieved at the appointed posts. From those, doubtless, the breed celebrated in Europe, under the name of THE CARRIER, has proceeded.

In modern times, those varieties which are kept for the purposes of amusement and show, are styled FANCY BREEDS, and they form a distinct article of commerce in cities and great towns, the varieties, as they chance to be in fashion, bringing a considerable price. In London, the pigeon fanciers immemorially,

I believe, have had a club, in which premiums are awarded, and the notable science of the fancy, through the medium of crossing colours and forms, is promoted and perpetuated. The chief objects of the fancy have hitherto been those varieties styled ALMOND (probably *ermine*) TUMBLERS, CARRIERS, and the birds with great crops, the most fashionable variety of which is the POUTING HORSEMAN. The specific merits of these breeds are indicated by their names. The tumbler exercises that faculty in the air, but is chiefly valued for his peculiar form and variegated plumage. The carrier, as a messenger, cuts the air with almost inconceivable swiftness. This is the *Columba tabellaria*, the famous carrier, or messenger, between *Aleppo* and *Alexandria in Egypt*. The pouter distends his crop to a size attractive to curiosity, and by his grotesque attitudes and familiarity with man, engages his attention.

Upwards of half a century past, the pigeon FANCY was in higher estimation and prosperity in this country than at present; and the almond tumbler was then in the greatest vogue; sums, probably to the amount of twenty or thirty guineas each, being the price of superior cocks of that breed, such as, at the present time, would not produce more than five. The pigeon shops generally seem the abode of poverty and misery, of which the poor unfortunate birds, crammed into baskets and narrow coops, obviously partake in the fullest measure. This fancy is a great favourite with certain of the lower classes in the metropolis, and perhaps too generally injurious to their better interests. Their common

method of entrapping stray pigeons, the property of other people, does not well consist with an honest principle, takes up too much of the time of those who practise it, and leads to loose and irregular habits. PIGEON SHOOTING is another purpose to which these birds are applied, and of which periodical details are to be found in the newspapers. Battersea-fields are the chief theatre of the sport.

"Few people, even those accustomed to reflect on animal sufferings, are aware of those of the wretched town pigeon, harassed about from its first quitting the nest, through the rough hands of scores of unfeeling blackguards; its feathers pulled, its wings *braced*, starved, and forced to fly against its inclination, matched, then unmatched, and its dearest ties broken; sold, resold, exposed in cages, immured in cellars, coal-holes, and loaded with every misery which can be inflicted by the wanton caprice, neglect, and beastly ignorance, of the two-legged race, its tyrants." —*British Field Sports.*

It is necessary to apprise the reader, that I have never had the honour to be initiated in the pigeon fancy, but have been simply a keeper of pigeons, for the use of the table, with some additional pleasure in their flight, and a degree of attention to those breeds which are of the largest size. On the subject of the fancy, the best authority with which I am acquainted is a Treatise on Domestic Pigeons, published by Barry, of Fenchurch-street, in 1765, with very good plates, descriptive of the chief fancy varieties. That treatise has been succeeded by Moor's *Columbarium*. The only breeds which I

have kept, exclusive of the common, were TUMBLERS, HORSEMEN, CARRIERS, TURTLES, DRAGOONS, (commonly called DRAGONS,) and RUNTS; the latter both Spanish and Leghorn, for their great size. As breeders, no fancy pigeons will, in general, equal the common dove-house kind, unless, perhaps, with great care and attention.

The PIGEON is monogamous, that is, the male attaches and confines himself to one female, and the attachment is reciprocal; the fidelity of the dove to its mate being proverbial. Young pigeons are termed SQUEAKERS, and begin to breed at about the age of six months, when properly managed: their courtship, and the well known tone of voice in the cock, just then acquired and commencing, are indications of their approaching union. Nestlings, whilst fed by the cock and hen, are termed SQUABS, and are at that age sold and used for the table. The dove-house pigeon is said to breed monthly, being well supplied with food, more particularly when the ground is bound by frost, or covered with snow. At any rate, it may be depended on, that pigeons of almost any healthy and well established variety, will breed eight or ten times in the year; whence it may be conceived, how immense are the quantities which may be raised.

It is, nevertheless, with difficulty that one can give entire credit to the calculations, in such respect, on pigeons and rabbits; bringing to our remembrance, to compare small things with great, the earths of gold of the celebrated Doctor Price, which have been so greatly reduced in number and

weight by subsequent doctors. But I suppose we must not question the positive testimony of Stillingfleet, who asserts that *fourteen thousand seven hundred and sixty pigeons were produced from one single pair, in the course of four years.* To class things of a similar bearing together, it has been calculated, but I know not by whom, or on what practical ground, that a *single pair of* RABBITS *may, in the same portion of time, namely, four years, produce one million two hundred and seventy four thousand eight hundred and forty of their kind!*

The first step towards PIGEON KEEPING, is, undoubtedly, to provide a commodious place for their reception, of which I shall afterwards speak; the next, to provide the pigeons themselves. These will be had in pairs, but if not actually MATCHED, pains must be afterwards taken to that end, that no time be lost; indeed, they may be matched according to the fancy of the keepers, for the purpose of varying the colours, or with any other view. But it is necessary to give a caution on the subject of OLD PIGEONS, of which a bargain may offer, since the difficulty of retaining them is so great, indeed insuperable, without the strictest vigilance. Nothing short of cutting their wings, and confining them closely until they have young to attach them to the place, will be a security; and even afterwards, they have been known to take flight with the first use of their wings, and leave their nests. I have had several examples of this. Thence it is always preferable to purchase SQUEAKERS, or such as have not yet flown: these, being confined, in a short time, well fed,

and accustomed gradually to the surrounding scenery, before they have acquired sufficient strength of wing wherewith to lose themselves, will become perfectly domesticated.

The DOVE-COTE, or pigeon-loft, as to its situation or extent, will necessarily depend on convenience; one GENERAL RULE, however, must be invariably observed,—that every pair of pigeons have two holes, or rooms, to nest in. Without this indispensable convenience there will be no security, but the prospect of constant confusion, breaking of eggs, and destruction of the young. Pigeons do well near dwellings, stables, bake-houses, brew-houses, or such offices: or their proper place is in the poultry-court. A dove-cote is a good object, situate upon an island, in the centre of a piece of water: indeed, such is a proper situation for aquatic poultry, and rabbits also; and may be rendered extremely beautiful and picturesque by planting, and a little simple ornamental and useful building. Where pigeons are kept in a room, some persons prefer making their nests upon the floor, to escape the danger of the young falling out; but in all probability this is to guard against one risk, and incur a great number, particularly that of rats and other vermin.

The FRONT of the pigeon-room, or cote, should have a south-west aspect; and if a room be selected for the purpose, it is usual to break a hole in the roof of the building for the passage of the pigeons, which can be closed at convenience. A platform is laid by the carpenter at the entrance, for the pigeons to alight and perch upon, with some kind of defence

against strange cats, which will often depopulate a whole dove-house; CATS are yet necessary for the defence of the pigeons against rats and mice, as they will both destroy the birds and suck the eggs; thence cats of a known good breed should be trained up familiarly with the pigeons. The platform should be painted white, and renewed as the paint wears off, white being a favourite colour with pigeons, and also most conspicuous as a mark to enable them to find their home. The boxes also should be so coloured and renewed as necessary, for which purpose lime and water will be sufficient.

CLEANLINESS is one of the first and most important considerations; the want of it in a dove-cote will soon render the place a nuisance not to be approached, and the birds, both young and old, will be so covered with vermin, and besmeared with their own excrement, that they can enjoy no health or comfort, and mortality is often so induced. Ours were cleaned daily; thoroughly once a week, a tub standing at hand for the reception of the dung, the floor covered with sifted gravel, often renewed. Pigeons are exceedingly fond of water, and, having a prescience of rain, will wait its coming until late in the evening, upon the house-top, spreading their wing to receive the refreshing shower. When they are confined in a room, they should be allowed a wide pan of water, to be often renewed as a bath, which cools, refreshes, and assists them to keep their bodies clear of vermin. In the attendance upon pigeons, caution is necessary with respect to their fighting, to which they are more prone than might be

expected, often to the destruction of eggs or young, or driving the weakest away.

The common BARREL DOVE-COTE needs no description, at the same time is adapted to every situation, in which it is desirable to keep pigeons for ordinary use. To return to the ROOM OR LOFT; the shelves should be placed sufficiently high, for security against vermin, a small ladder being a necessary appendage. The usual breadth of the shelves is about twenty inches, with the allowance of eighteen between shelf and shelf, which will be sufficient not to incommode the tallest pigeons. Partitions between the shelves may be fixed at the distance of about three feet, making a blind, by a board nailed against the front of each partition, whence there will be two nests in the compass of every three feet, so that the pigeons will sit in privacy, and not be liable to be disturbed. Or a partition may be fixed between each nest;—a good plan, which prevents the young from running to the hen sitting over fresh eggs, and perhaps occasioning her to cool and addle them; for when the young are about a fortnight or three weeks old, a good hen will leave them to the care of the cock, and lay again.

Some prefer BREEDING HOLES entirely open in front, for the greater convenience in cleaning the nests; but it is from those that the SQUABS are likely to fall; thence a step of sufficient height is preferable. The tame pigeon seldom taking the trouble to make a nest, it is better to give her one of hay, which prevents her eggs from rolling. Or a straw basket, or unglazed earthen pan, may be

placed in every nest, apportioned to the size of the pigeons you breed. A PAN of three inches high, eight inches over the top, and sloping to the bottom like a basin, will be of sufficient size for a TUMBLER, or a small pigeon, whilst one of double those dimensions will be required for a large RUNT. A brick should always be placed in contiguity to the pan, to enable the cock and hen to alight with greater safety upon the eggs.

The PIGEON-TRAP, on the house-top, is the well-known contrivance of those London rascals, who lie in wait, as has been said, to entrap the property of others. A trap of another description, and for a very different purpose, is sometimes used; it is an area, on the outside of a building, for the purpose of confining in the air valuable breeds of pigeons which cannot be trusted to flight. Some are erected to the extent of twenty yards long and ten yards in width, with shelves on every side for the perching of the pigeons; thus they are constantly exercised in the air, retiring at their pleasure to the room or loft within.

Very convenient BASKETS are now made of the cradle form, with partitions, or separate apartments. They serve for the carriage of pigeons for matching, or putting them up to fatten, or for any of the usual purposes. I have seen them lately, in the basket shops on the Greenwich road, two or three miles from London.

FOOD and WATER should be given in such way, as to be as little as possible contaminated with the excrement, or any other impurity. Our pigeons hav-

ing been constantly attended, we have never found the need of any other convenience than earthen pans; but there have been ingenious inventions for this purpose, of which the MEAT-BOX and WATER-BOTTLE following are specimens. The meat-box is formed in the shape of a hopper, covered at the top to keep clean the grain, which descends into a square shallow box. Some fence this with rails or holes on each side, to keep the grains from being scattered over; others leave it quite open, that the young pigeons may the more easily find their food.

The WATER-BOTTLE is a large glass bottle, with a long neck, holding from one to five gallons, its belly shaped like an egg, that the pigeons may not light and dung upon it. It is placed upon a stand, or three-footed stool, made hollow above, to receive the belly of the bottle, and let the mouth into a small pan beneath: the water will, in such wise, gradually descend out of the mouth of the bottle as the pigeons drink, and be sweet and clean, and always stop when the surface reaches the mouth of the bottle.

To MATCH or PAIR a cock and hen, it is necessary to shut them together, or near and within reach of each other; and the connexion is generally formed in a day or two. Various rules have been laid down, by which to distinguish the cock from the hen pigeon; but the masculine forwardness and action of the cock is, for the most part, distinguishable.

INCUBATION. The great increase of domestic pigeons does not proceed from the number of eggs laid by them, but from the frequency of their hatching. The hen lays but two eggs, and immediately

proceeds to incubation. Having laid her first egg, she rests one day, and, on the next, lays her second egg. They usually stand over the first egg, not sitting close until they have two, whence, both the young are hatched nearly at the same time: there are some exceptions, however, to this rule of nature, and the hen, having sat close at first, one young bird may be hatched a day or two before the other. They often spoil their first eggs from inexperience.

The PERIOD of INCUBATION is NINETEEN or TWENTY days from laying the first egg, and SEVENTEEN or EIGHTEEN from the last. The labour of sitting is equally divided between the cock and hen, excepting that the hen always sits by night. She is relieved in the morning by the cock, which sits during the greater part of the day. The business of feeding the young is also divided between the parents; and the cock has often brought up the young, on the accidental loss of his mate. Should not the eggs be hatched in due time from weakness, some small assistance may be necessary to extricate the bird from the shell; or, should they be addled, it is generally held necessary to provide the cock and hen with a borrowed pair of young, or at least one, to feed off their soft meat, which else may stagnate in their crops, and make them sick; but, as young ones for this purpose may not always be at hand, the exercise of flying, fresh gravel, and those saline compositions generally given to pigeons, are the proper remedy. Addled, or rotten eggs, should be immediately removed.

Pigeons are extremely liable to be lost by acci-

dent; and that which is unaccountable is, although they will find their home from such great distances, they nevertheless often lose themselves in their own neighbourhood. Should a cock or hen be lost during incubation, the eggs will be spoiled in twenty or thirty hours, and may then be taken from the nest; but, if the accident happen after hatching, the single parent left will feed the young. Should both parents be lost, the young are very easily accustomed to be fed by hand with small peas or tares, much preferable to barley. We did not find any necessity for recourse to the old housewife's instrument, the hollow reed.

SOFT MEAT is a sort of milky fluid or pap secreted in the craw of pigeons, by the wise providence of nature, against the time when it will be wanted for the nourishment of their young. In all probability, from instinct, the pigeons eat a greater quantity at this time, and the grain goes through a certain process in their crops, which produces the soft meat or pap in question. This they have the power of throwing up at will; and, in feeding, they eject it from their own bills into those of the young ones, the bills of which are taken into their own. This kind of feeding continues six or seven days, when the old ones begin to mix some harder food with it, until, at length, they feed with whole grain. When the time approaches for the hen to lay, the cock is often seen driving her from place to place, not suffering her to rest any where but in her nest, apparently from an instinctive apprehension that she may drop her egg in an improper place.

FOOD. Pigeons are entirely granivorous, and very delicate and cleanly in their diet; they will sometimes eat green vegetables, in particular warm salads, and are extremely fond of seeds. TARES and the SMALLEST kind of HORSE BEANS, commonly called pigeon beans, are both the best and cheapest food for pigeons, but the pulse should always be old, that is to say, of the previous year, as the new will scour pigeons, as well as any other kind of live stock. SEEDS are occasionally given to pigeons, as a warming and stimulant diet; but, according to my experience, they greatly prefer rape and canary to hemp-seed. It has been remarked, that beans, sodden in salt-water, scour pigeons equally with new beans, and, in a voyage, suffering them to drink sea-water will soon kill them: although so generally benefited by salt, an excess of it is fatal, as it is also to vegetation, promoted as that is by a moderate quantity.

In most publications on the subject of pigeons, a dangerous mistake has been made in a term applied to beans. Small *tick* beans are recommended, instead of small horse-beans. Now the tick, or *kidwell* (in the western phrase), are the larger of the two common field varieties, and, beside being inferior in quality, are too large for pigeons, which have been sometimes choked even with the common-sized horse-beans; on which account, the smallest possible should be procured, whence such are termed in the market accounts, "pigeon-beans." Pease, wheat, and buck-wheat, or brank, are eaten by pigeons; but should be given only in alternation,

not as a constant diet. The same of seeds. They yet prefer wheat. The strong scent of cummin, and flavour of coriander seeds, are said to have an alluring effect upon the olfactory nerves and palate of these birds; as also the scent of *assafœtida*, and other powerfully odoriferous drugs; and that the use of fumigations of such in the dove-cote, will not only attract the pigeons to their home, but allure strangers, which may be wandering in search of a habitation.

The last dietetic, or rather, perhaps, medicinal article necessary to be described, is the SALT-CAT, so called from some old fancy of baking a real cat with spices, for the use of pigeons, which, however, I never observed to eat animal food. In compliance with this custom, I caused to be placed in the middle of the pigeon-loft, a dish of the following composition: loam, sand, old mortar, fresh lime, bay-salt, cummin, coriander, caraway-seed, and allspice, moistened into a consistence with urine. The pigeons were constantly pecking at this, and were in a constant state of good health—how much of which may be attributed to the use of the cat, I cannot determine; but, certainly, they are extremely fond of it, and, if it had no other merit, it prevents them from pecking the mortar from the roof of the house, to which otherwise they are much inclined. The cat was mixed and heaped up in the dish, a piece of board being placed upon the summit, to prevent the birds from dunging upon it; when become too hard it was occasionally broken for them.

The regular OLD FORMULA for this cat is as fol-

lows: gravel or drift-sand, unctuous loam, the rubbish of an old wall, or lime, a gallon of each—should lime be substituted for rubbish, a less quantity of the former will suffice—one pound of cummin-seed, one handful of bay-salt; mix with stale urine. Inclose this in jars, corked or stopped, holes being punched in the sides, to admit the beaks of the pigeons. These may be placed abroad.

Many fanciful and groundless tales may be found in old books relative to the MEDICINAL and REMEDIAL properties of almost every part of the pigeon; thus much, however, may be relied on: their flesh, when young and in good condition, is a nourishing and stimulant diet; that of the full-aged pigeon more substantial, but harder of digestion, and, in a considerable degree, heating. The general rule of colour affecting quality in the flesh, holds good in tame pigeons. The black and dark feathered are proportionally dark or brown fleshed, of high flavour, inclining to the game bitter of the wild pigeon. The light colour in the feathers, denotes light and delicate flesh. Their DUNG is of an extremely heating and drying quality, whether as a manure, or for medicinal purposes. It was, in former days, a principal ingredient in nitre-beds, when that article was almost entirely manufactured at home.

CARRIERS, HORSEMEN, and DRAGOONS, are travellers or messengers, and I have occasionally seen TUMBLERS turned off, at the distance of forty miles from home. The carrier, it is said, has performed a journey of forty miles in an hour and a half, and

of even ninety miles in three hours. A dragoon has flown seventy-six miles in two hours and a half: this ancient fancy of flying pigeons had declined, but has, it seems, revived within a few years. The admired qualities in the TUMBLER are excessive high flight, so as to be almost imperceptible to the keenest eye, in fine and clear weather; perseverance in their flight for many hours together, and tumbling over and over repeatedly during their ascent and descent.

Whatever benefit or utility may have been derived, in ancient days, from these winged messengers, it is probable the moderns reap no other benefit from them than that of amusement and the gratification of curiosity, by flying them for prizes and betting. Scarcely, however, is there a great race or great fistic contest at a distance from the metropolis, but a profitable use is *said* to be made by pigeon-flyers, in sending instant intelligence of the result to their confederates in town. But after all, this appears, with perhaps a few exceptions, to have been from the beginning a regularly repeated *hoax;* and such is the opinion of a late writer in the Sporting Magazine. The practice, nevertheless, of flying pigeons between this country and the continent, has revived within the three or four last years, and has been frequently repeated. It is pretended, that speedy intelligence is thus kept up between London and Rotterdam, on the course of exchanges.

In 1825, the Society of Amateurs at Antwerp sent ninety carriers to Paris, to fly for a prize. They were started from the French capital at seven

in the morning, and by noon of the same day, thirteen of them had reached home. The first arrived at half past eleven o'clock. One of the Flemish breed, turned off after the fight for the championship, at Warwick, by Harry England, of the Green Man Inn, Kent Road, performed the ninety-two miles in three hours and thirty minutes. Mr. Atwood made a bet of one hundred sovereigns, that he would fly six pigeons from the high ground near Crostwick, in Norfolk, one hundred and fourteen miles, and that one should arrive at his loft, in the Sanctuary, St. George's Fields, within four hours and a half. The other part of the match was, fifty pounds, that the second bird would not be at home in five hours and a half, and a like sum that the third would not in seven hours. The event proved as follows;—the first bird was at the end of his flight in twelve minutes within the given time, and the second bird arrived within five hours; but the others were not heard of during the day.

In July 1828, fifty-six carriers, brought to London from *Liege*, were flown in the neighbourhood of Aldersgate-street, at thirty-four minutes past four o'clock, A. M. One of them called *Napoleon*, reached its destination, a distance of three hundred miles, at about twenty-four minutes past ten o'clock the same morning, having thus accomplished its journey in five hours and fifty minutes, which is somewhat beyond the speed of the eagle, (a heavy bird,) and is stated to be about forty-five miles per hour. The other pigeons followed in succession, and most of them reached *Liege* at noon. This is a large city in *Westphalia*,

long famous for the pigeon fancy. In July, 1829, another prize flight took place, with forty-two pigeons, between *Maestricht* and London. The first bird lost by a few minutes, though it travelled at the rate of forty-five miles per hour.

By what kind of natural qualification birds are able to explore their way across such immense distances of land and sea, seems to mock all human powers of inquiry: and granting the accuracy of ancient relations in respect to the regular and successful use of pigeons as messengers, it appears to be one of those ancient arts said to be buried in the grave of time, which has not hitherto encountered resurrection. The price of a pair of carriers was about six guineas.

The Carrier Pigeon fancy has never since been so attractive and prevalent in this country, as it was fifty or sixty years ago. It revived, but in a comparatively inconsiderable degree, a few years since, but at present seems to have suffered a total eclipse. Men's minds have assumed a direction entirely opposite to that of sportive amusement; political reform, and redress of ancient grievances, are now the popular substitute for pigeon-flying: in course, both the breed and price of carriers are proportionally reduced. It is true, pigeon-shooting up the Thames, at Battersea, has yet its annual term, but pigeon-shooters, and pigeon-flyers, have generally been distinct classes.

The following imperfect account of pigeons used and sold from a Berkshire dove-cote, in 1807, is extracted from the Survey:—147 used in the house, at 5*s*. per dozen, 3*l*. 1*s*. 3*d*.—Sold 550 for

10*l.* 15*s.* 10½*d.*=13*l.* 17*s.* 1½. The DUNG estimated at one-fourth of their return per annum.

NEW GUINEA pigeons are said, in some Lady's Voyage to India, nearly to equal the turkey in size; of a slate colour, with a crest of gauze feathers some inches high, in the form of a fan; the iris of the eye bright vermilion.

By my memoranda, in 1801, I observe that sixty-five pairs of old pigeons, and one hundred and forty squeakers of all sizes, regularly fed, consumed in one week, five pecks of the smallest beans, and ten quarts of seeds. The above old stock, without any young, consumed about half the quantity.

From the same. FAN-TAILS or SHAKERS, the head always in motion, are a beautiful stock, and good breeders, but so stupid and silly, as scarcely to be capable of taking care of themselves, or finding their home. RUNTS, although so much larger, breed as fast and equally forward as Tumblers. The duration of life in the pigeon is said to extend to about twenty years, and it is deemed full aged when the wings are full of the quill feathers.

According to 7 and 8 Geo. 4. c. 29. sect 33. persons unlawfully killing, wounding, or taking any house dove or pigeon, under such circumstances as do not amount to larceny at common law, shall forfeit over and above the value of the bird, any sum not exceeding forty shillings. Occupiers of lands may lawfully kill pigeons destroying corn.

At the Westminster Court of Requests, in February 1829, a decision was made against TRAPPING pigeons, the defendant being amerced in the price

of the pigeons and costs. There is, however, a bye-law among the fancy, that a *groat* shall redeem a trapped pigeon. But suppose the stray should be a valuable bird, worth many pounds?

The following singular detection of a thief occurred on a late examination at Queen's Square, Westminster:—Mr. Bepy, in the Wandsworth Road, had his pigeon-house robbed. A known thief was stopped on the road with six fancy pigeons in his possession, by Sergeant Reardon of the police, and taken before the magistrates, but no evidence appearing against him, he was discharged, and suffered to take away the birds, which he claimed as having purchased them. Cooper, an officer of the court, being somewhat up to the pigeon fancy, and seeing them above the common sort, purchased them, and very commendably determined to find out the real owner, which he effected in the following ingenious mode. Selecting a fine bald-head, he attached a note to its foot, with his address, and then threw up the pigeon, which instantly flew to its own home, and was recovered by its owner, who returned it to Cooper, making him a present of the half-dozen as a reward for his sagacity.

On conclusion of the subjects of the feathered race, I have a few notes to make relative to the VERMIN which infest the country, and are unavoidably so destructive to the eggs and young of game, and occasionally to those of domestic poultry. These are too well known to need much attention here, as to their names or description—viz. the stoat—polecat—weasel—marten—cat: together with most birds of prey,

and reptiles, the snake, adder, and viper; for in various examinations in former days, it appeared to me that there is a specific difference between the two latter, particularly in size and length, and the colours of the belly. Such animals, however, it would seem, there necessarily must be, for though wolves, in old time, were finally and completely exterminated in this country, a similar end appears not to be attainable with respect to the minor breeds of depredators. Our only resource then, and it ought to be established as a general rule, is to reduce their numbers by constant unceasing periodical attacks; for if these, however immediately effective (to refer particularly to the rat), should be, as is too usually the case, subsequently neglected, a temporary advantage only is obtained, and a too numerous breeding stock left. Such was the sound advice given in a Pamphlet published many years since, intituled, "Multum in Parvo, or every man his own Vermin Killer." The best means to the above ends, are keeping vermin curs and ferrets, and when poison is used, arsenic is to be preferred, as certain without deception. A few grains of this are mixed with any article known to be attractive to the vermin intended to be destroyed. From its known danger, poison ought to be the ultimate remedy employed. Trapping is a sort of retail method, to be managed by the initiated in that practice. The best vermin dogs, those also watch-dogs, the tongues of which when alarmed, nothing could still, were those I had during my former residence on Sudbury Green, Harrow on the Hill,

and at that period, a very distant one indeed, there was an extensive breed of them in the vicinity.

The RAT must certainly be looked upon to be the heaviest and most expensive depredator, as subsisting on corn, particularly on wheat. Should a farmer catch two or three rats, and board them during a week or two upon wheat, taking account of the quantity consumed, with the probability that it would be much more were the rats at large, he might gain intelligence worth knowing, granting he made good use of it, and would thence take the advice given in the New Farmers' Calendar, to have a perpetual periodical rat hunt, the periods never being too distant. The following example of the Proprietors of the St. Katherine's Docks, London, is indeed a shining and a radical one. I learnt from a well informed person, who is often in the vicinity, that some hundreds of cats are kept in the Docks, to destroy the rats, which previously to this mode of insurance, made havoc amongst the sugars there deposited, to a vast annual amount. The annual expense of this plan is £104. The cats' meat is bought by contract, and two men are allowed to attend and feed them. They are fed in the morning at six, and in the evening at nine o'clock. A Proprietor, it seems, some time since, took a fancy to one of the cats, a great beauty and famous vermin-killer, and would have it, much against the inclination of the attendants. It was accordingly trapped; and the gentleman himself undertaking the perilous attempt to lay hold and release it, the cat flew at him

most ferociously, inflicting very severe wounds on his face, and then escaped.

Being a great lover of cats, and a constant keeper of them, I long since made the discovery, that rat-catching is a peculiar qualification which nature has bestowed on only one part of the species; and though the other part may be good mousers, they will not attack a rat, at any rate a second time. My little black cat, 'Sweet Sish,' between which and my trotting mare 'Betty Blos,' there subsisted so great affection, must have saved me a considerable sum, during the nine years she lived with me in Surrey. Her constant and excessive attention to the pursuit of her game, at length destroyed her health, and ended her life; not that it is probable she fed on the rats she killed, a diet generally so injurious to cats, since she always dieted with us, as a thrice worthy member of the family. She readily took the water and swam well. Her stock were all rat cats, some of them, in particular, of high qualification. Finally, certain of the sagacious methods of taking and destroying rats, recommended in books, remind me of an appropriate passage in Hudibras—

> "He made a planetary gin,
> Which rats would run their own heads in,
> And come on purpose to be taken,
> Without the expense of cheese or bacon."

The same for taking partridges and other game; good parallels to the ancient nursery plan, of catch-

ing sparrows by laying salt on their tails. As to the effects of the late Game Bill, many, or perhaps most people, profess the opinion that it has increased poaching. On what ground such an opinion stands, I am uninformed; on the contrary, it appears to me that its effects have proved materially the reverse, judging from general newspaper reports: among those, a Shrewsbury Chronicle of last year observes—"The proportion of persons committed for poaching this year, is vastly less than in any former season." Indeed this seems a necessary result of an act which legalized and so widely extended the market. I did not formerly forget the Parson of Penslow, and I must not now neglect to renew my just reproaches and cautions against the horrible tortures inflicted by cold-hearted and unreflecting people on animals, which, no doubt, it is our natural right, as well as our interest to destroy by the quickest and the easiest mode of death, for these animals were endowed by nature with the same chartered right to hunt for their support, which we ourselves claim from the same authority. My own eyes, in early youth, beheld the heart-rending sight of a rat roasted alive, and the piercing shrieks of the tortured animal, though at the distance of seventy years, agonize and make me shudder! The hellish act was perpetrated by an old beldame of the name of Stubblefield, housekeeper to a clergyman who taught a few scholars. I once saw also the shopman of a grocer in a country town, running in the street, after a rat tied by the leg with a long string, its back all

in a blaze, which had probably been rubbed with some combustible. What acts of absurd, ill-conceived revenge! As to fish baits, I do not envy the feelings of those, who can impale them living with hooks, and recommend it, writing with the utmost *sang-froid*, that the baits will probably live in that state three or four days!

Prices of Game at Leadenhall Market, Nov. 25, 1833. A few of that splendid bird THE COCK OF THE WOOD, now extinct in this country, arrived yesterday from Norway in the very finest condition, and were immediately bought up at one guinea each. Grouse, short, at 7*s*. and 8*s*. the brace. A few black game, no price named. No Ptarmigan. Pheasants very good at 8*s*. a brace, and birds plentiful at 4*s*. Hares abundant at 3*s*. and 3*s*. 6*d*. each. Fresh wild ducks 5*s*. English 6*s*. to 7*s*. a couple. Wigeon 3*s*. Teal 2*s*. 6*d*. Golden Plover 3*s*.; common 2*s*. 6*d*. a couple. French Woodcocks 6*s*. English 8*s*. a couple. Foreign Snipes 2*s*. March birds 3*s*. a couple and plentiful. Wild Rabbits from 9*s*. to 11*s*. a dozen. A full supply of Poultry at moderate prices.

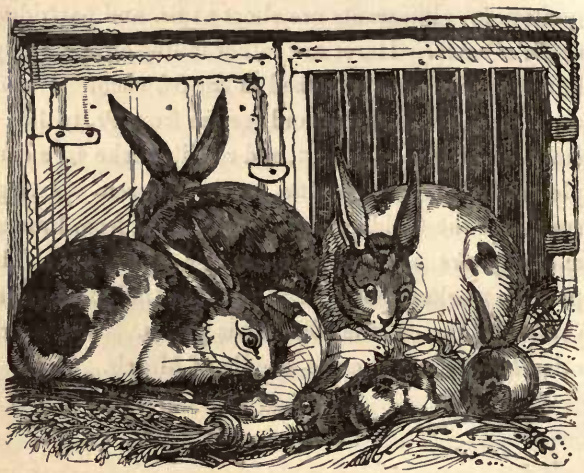
Following Christmas prices—Pheasants 8*s*. Birds 4*s*. 6*d*. a brace. Scotch hares 2*s*. 6*d*. English from 4*s*. to 4*s*. 6*d*. each. Foreign wild ducks 5*s*. English 6*s*. and 7*s*. a couple. Wigeon 4*s*. 6*d*. Teal 4*s*. Woodcocks, very scarce, 10*s*. Snipes 3*s*. a couple. Wild Rabbits 14*s*. to 16*s*. a dozen. Turkeys very plentiful and fine, with a ready sale. Three weighing 91lbs. obtained three guineas each. One eighteen months old, weighing thirty-four pounds, was sold

at the same price. The general market, however, for turkeys, was reasonable, and the commodity generally good.

Prices of the following at Leadenhall Market, February and March 1834. Feb. 8. concluded the game season, except as to Hares, which have the protection of a severe penalty to any one "tracking them in snow." As the dealers, however, are allowed ten days to dispose of their stock, we continue our quotation. Pheasants are short at 8*s.* and partridges at 4*s.* a brace. Hares are rather falling off in supply, but good ones may be had at 3*s.* 6*d.* each. Woodcocks are very scarce, and realize from 9*s.* to 12*s.* a couple. Snipes also short, and readily make 4*s.* a couple. Wild Rabbits from 12*s.* to 16*s.* a dozen. A large supply of the Golden Plover has arrived from France, and they are selling from 3*s.* to 4*s.* a couple. The poultry market looks well, and the trade is brisk at some advance on the Christmas prices. Little variation has occurred to the middle of March.

SECTION XV.

Rabbits.



RABBITS are animals proper to be allowed in a wild state, in those countries only, where are extensive wastes, and where corn and other farming productions are not at a high price: in populous and highly cultivated regions, they are a great and wasteful nuisance, and proofs are before the public, only a few years old, of nearly the whole produce of a farm being devoured by them, to the ruin of the tenant. This farm was situated in the vicinity of extensive

preserves; but it is equally unfortunate for a farmer to be fixed near to, or within some miles of a rabbit-warren, since they will travel to a great distance, to feed either upon corn or vegetables, and if the soil and corn be to their liking, will always remain in sufficient numbers to stock a new district. At the same time, they are a good and profitable stock, domesticated; infinitely more prolific, under good management, than in their wild and exposed state, and their dung is extremely valuable upon a farm.

The old writers, perhaps, rather overvalued the profits of this stock. Rabbit-keeping is practised by a few individuals in almost every town, and by a few in almost every part of the country; but thirty or forty years ago, there were one or two very considerable feeders near the metropolis, keeping each, according to report, from fifteen hundred to two thousand breeding does. These large concerns have ceased, it seems, long since, and London receives the supply of tame, as well as wild rabbits, chiefly from the country.

The only considerable rabbit-feeders of whom I heard, some years since, were two gentlemen, the one resident in Oxfordshire, the other in Berks. The former fed some hundreds, and then, it was said, intended to double his stock. The HUTS were placed in a small building set apart for that purpose. The then stock produced one load of dung per week, two loads of which were sufficient to manure an acre of land. Three dozen of rabbits per week were sent to the London market, but keep and attendance

reckoned, no other profit accrued, excepting the dung, the price of which used to be eight-pence per bushel, and I believe thirty-six bushels are reckoned a load. The Berks gentleman, according to the survey of that county, fed white rabbits on account of the superior value of their SKINS, from their application of late years to the purpose of trimmings. Twenty does and two bucks were my largest stock.

The RABBIT-HOUSE should stand upon a dry foundation, and be well ventilated. Exposure to too much humidity, whether externally or internally, is fatal to rabbits, which are liable to the rot like sheep, and from the same causes. The rains of 1799, which continued nearly four months, destroyed my stock of rabbits, which were hutted in a boarded shed not well defended from the cold and moist air. Ventilation and fresh air are also necessary, where considerable numbers of these animals are kept, which will not else remain healthy, or prosper for any length of time: and even sudden mortality may ensue from impure and stagnant air. A thorough draught or passage for the air is thence indispensable, and should be contrived in the building, with the convenience of shuting such opposite windows or doors in cold and wet weather.

The HUTS or HUTCHES are generally placed one above another to the height required by the number of rabbits, and the extent of the room. Where a large stock is kept, to make the most of room, the hutches may be placed in rows, with a sufficient interval between, for feeding and cleaning, instead of being joined to the wall in the usual way. It is pre-

ferable to rest the hutches upon stands, about a foot above the ground, for the convenience of cleaning under them. Each of those hutches intended for breeding should have two rooms, a feeding and a bed-room. Those single are for the use of WEANED RABBITS, or for the BUCKS, which are always kept separate.

When much green meat is given, rabbits make a considerable quantity of urine, and I have sometimes seen occasion to set the hutches sloping backwards a few degrees, a very small aperture being made the whole length of the floor to carry off the urine. A sliding door in the partition between the two rooms, is convenient for confining the rabbits during the operation of cleaning; which, indeed, is a good argument for having all the hutches double, it being more troublesome to clean out a room with a number of rabbits in it, than with only one. It must not be forgotten that the teeth of rabbits are very effectual implements of destruction to any thing not hard enough to resist them, and their troughs should be bound with something less penetrable than wood, as they are apt to scratch out their food and dung in it. I have often thought it might be useful to adopt the feeding troughs with moveable boards, as well for rabbits as hogs.

The FLOOR of the hutches should be planed smooth, that wet may run off, and a common hoe with a short handle, and a short broom, are most convenient implements for cleaning these houses. The object being to obtain the dung pure for sale, no litter should be allowed; but on a farm where

the dung is expended at home, the hutches should be littered with refuse hay or straw, perfectly dry. The rabbit-house to contain a tub for the dung, and a bin for a day's supply of hay, corn, roots, or other food, which should be given in as fresh a state as possible.

There are other modes of confining rabbits for breeding, in which they are left to their liberty, within certain bounds; for example, an artificial mound walled in, in which they burrow and live as in the natural state, and an island as described in Mr. Young's Annals: methods which are certainly ornamental and pleasurable, as well, perhaps, as more for the comfort of the animals; but surely not so profitable to the owner as hutching, in which mode also, they may be preserved, with due care, in the highest state of health. On this head I find the following remark in my memoranda for the year 1805: *Rabbits at large must always suffer more in point of profit, by loss of number, than they gain by cheaper feeding, exclusive of the mischief they do:* and this principle operates proportionally in limited enlargement, as in the unlimited upon the warren. They are quarrelsome and mischievous animals; and the bucks, when at liberty, destroy a considerable part of the young. A run abroad, indeed, for young rabbits, until a certain age, might be beneficial if *growth* were the object; but all rabbits must be separated at the age of puberty, or as soon as they become fit for breeding; they will else tear each other to pieces.

As to the VARIETIES of FORM and COLOUR, in the

rabbit, the short-legged, with width and substance of loin, generally few in number, and to be obtained only by selection, are the most hardy, and fatten most expeditiously, taking on fat both internally and in the muscular flesh. They have besides the soundest livers, rabbits being generally subject to defects of the liver; they are the smallest variety. There was formerly a very LARGE VARIETY of the hare colour, having much bone, length and depth of carcase, large and long ears, with large eyes resembling those of the hare. They might well be taken for hybrid or mules, but from the objection of their breeding, and the breeding of a mule is a rare and often questionable occurrence. Their flesh is high coloured, substantial, and more savoury than that of the common rabbit: and they make a good dish, cooked like the hare, which, at six or eight months old, they nearly equal in size. I have not of late years met with any of this large variety. The large white, and yellow and white species, have whiter and more delicate flesh, and cooked in the same way will rival the turkey.

With respect to COLOUR, I have always preferred the wild colour and black, finding the skins of full as much worth as the white. The TURKISH, or FRENCH RABBIT, with long white fur, differs little from the common varieties; nor did I find their skins of more value, either for sale or home use. I have been in the habit of drying the skins, for linings of night-gowns, and other domestic purposes; but have always found reason to prefer the short, close

fur. The large above mentioned—indeed any peculiar varieties—must be sought among the London dealers.

Of late years, in London, the term *smut*, has been applied as a mark of distinction in the rabbit. Thus, there are single and double smuts. The smut consists of a black spot on the side of the rabbit's nose: when there are two black spots, one on each side of the nose, it constitutes a double smut. Generally, the rabbits are prized for the number of these black spots upon the head and body, and for the fineness and length and size of the ears, which occasions their falling about the head, in a manner different from the common rabbit. Black and tortoiseshell are the favourite colours.

A *connoisseur* has lately favoured the author with the following practical observations on HARES and RABBITS. "According to the furriers, the Siberian hares are the finest in the world, for size, strength, and quality of the fur. Next to those in point of size are the *maukins*, found on the Isle of Man. The weight of one of them exceeds belief, and has been given as high as twelve to fourteen pounds. The hare skins of North Wales are also favourites with the trade, and in proportion to their size bring a higher price than any other, not excepting the maukins of our own high lands.

"RABBITS are divided into four kinds—*warreners*, *parkers*, *hedgehogs*, and *sweethearts*. Burrowing under ground is favourable, it appears, to the growth of fur; and the warrener, though a member of a sub-

terraneous city, is less effeminate than his kindred, who roam more at large. His fur is most esteemed, and after him comes the parker, whose favourite haunt is a gentleman's pleasure grounds, where he usually breeds in great numbers, and not unfrequently drives the hares away. The hedgehog is a sort of vagabond rabbit, who travels tinker-like throughout the country, and who would be better clad if he remained more at home. Sweethearts are tame rabbits, and their fur, though sleek, is too silky and soft to be of much use in the important branch of hat-making." I believe I have had Essex and Lincolnshire marsh hares equal to, if not above, the weight which seems to have so surprised our connoisseur.

I have heard, or read somewhere, of a peculiar breed of Lincolnshire rabbits, styled the silver-tipped, having the fur of a dark or lighter grey, mixed with longer hairs tipped with white. Numbers of this description may be seen in the vicinity of the metropolis, where they were bred without any knowledge in the breeders of their Lincolnshire origin. Their skins, of no extra value here, are said to be in demand for exportation to Russia and China, and thence brought up in large quantities by the fur merchants for exportation.

BREEDING. The DOE will breed at the age of six months, and her period of GESTATION is thirty or thirty-one days. It should be premised, that the buck and doe are by no means to BE LEFT TOGETHER; but their union having been successful, the buck must be immediately withdrawn, and the doe

tried again in three days: in fact, with rabbits, this business is conducted on the same principle as in the stud. Like chickens, the best breeding rabbits are those kindled in March. Some days before PARTURITION, or kindling, hay is to be given to the doe, to assist in making her bed, with the flue which nature has instructed her to tear from her body for that purpose. She will be at this period seen sitting upon her haunches, and tearing off the flue, and the hay being presented to her, she will, with her teeth, reduce and shorten it to her purpose. Biting down of the litter, or bed, is the first sign of approaching pregnancy. The number produced generally between FIVE and TEN; and it is most advantageous always to destroy the weak or sickly ones, as soon as their defects can be perceived, because five healthy and well-grown rabbits are worth more than double the number of an opposite description, and the doe will be far less exhausted. She will admit the BUCK again with profit at the end of six weeks, when the young may be separated from her, and WEANED. Or the young may be suckled two months, the doe taking the buck at the end of five weeks, so that the former litter will leave her about a week before her next parturition.

A notion was formerly prevalent, of the necessity for giving the buck immediately after the doe had brought forth, lest she should pine, and that no time might be lost; and if it were intended that no time might be lost in destroying the doe, such, indeed, would be the most successful method. Great care should be taken that the doe, during her gestation,

be not approached by the buck, or, indeed, by any other rabbit; as, from being harassed about, she will almost certainly cast her young. One doe in a thousand may DEVOUR her young; the sign that she ought to be otherwise disposed of. Some does admit the buck with difficulty, although often apparently in season; such should be immediately fattened off, since it can never be worth while to keep an objectionable individual for breeding, of a stock to be produced in such multitudes. Should the doe be WEAK on her bringing forth, from cold caught, or other cause, she will drink beer-caudle, as well as any other lady; or warm fresh grains will comfort her; a malt mash; scalded fine pollard, or barley-meal, in which may be mixed a small quantity of cordial horse-ball.

Mr. Brown, of Banbury, who has published some observations on the subject, believes, that what appears to be a propensity in the doe devouring her young, is nothing more than a necessitous, though truly unnatural act. That it is done to satiate the thirst induced by the febrile state of parturition, which thirst they, in consequence of their confinement, have not the natural power to allay. Hence the horrid alternative of sacrificing their young, an extremity to which they are never driven in a state of nature.

Mr. B. observes, "I have had rabbits which have been sold me cheap, in consequence of this seeming proneness to eat their young, which I have entirely avoided by allowing the animal some short time anterior, at the time, and for a week or so after parturi-

tion, to drink freely of cold water; and, when I have taken this precaution, no such propensity ever evinced itself in the least; and that cold water is in no way injurious, and the animal appears wonderfully gratified by it.

"The preceding remarks go to prove, that the propensity is, in fact, one which has necessity for its origin; and that of the most imperious nature. Hence, it is recommended to all who may have suffered from this cause, to supply the parturient animals with as much cold liquid as they require or can drink."

However plausible this theory of Mr. Brown may be, and however occasionally useful, it must not be received as generally correct. We must look deeper for the real exciting cause of this apparently unnatural, perhaps inscrutable act, in females of various *genera* of animals, than thirst, and the mere want of drink, since it is well known to take place when there is no such want, particularly in the rabbit, the least liable to thirst, the sow, the cat, the ferret, and others. The cow also devours her after-burden, in a field of grass, and in reach of the pond at which she is daily accustomed to drink. There are, moreover, formidable objections to this hypothesis of Mr. Brown; no light one is the solidity of the substance chosen to allay thirst, better calculated, one would suppose, to appease hunger; and another weighty one in the fact, that some, or most females, never devour their young, under whatever circumstances of privation. The doe will, as I have experienced, sometimes commit the act from resentment

at having her bed and young disturbed and pryed into; and will then wantonly tear her bed in pieces, and scatter the fragments about her hut.

The above remarks may also serve as a reply to the truly theoretical supposition of Professor Coleman, who attributes this unnatural act in the doe to the consciousness of a deficiency in milk.

With due attention to keeping them warm and comfortable, and guarding against any sudden impression from cold, and more particularly moist air, and with the aid of the best and most nourishing food, I have bred rabbits throughout the WINTER, with nearly equal success as in the summer season. But, in truth, their produce is so multitudinous, that one might be well satisfied with four or five litters, during the best part of the year, giving the doe a winter fallow.—Even four litters would, upon the lowest calculation, produce TWENTY YOUNG ONES ANNUALLY to each doe; equal to an annual TWO THOUSAND from a stock of ONE HUNDRED DOES. I have no experience of does, as breeders, beyond the FIFTH year: the BUCK will come into use at six, or even four months old, and be in perfection from the age of two to three years.

FEEDING. Upon a regular plan, and with sufficient attendance, it is better to FEED three times than twice a day. The art of feeding rabbits with safety and advantage is, always to give the preference to dry and substantial food. Their nature is congenial with that of the sheep, and the same kind of food, with little variation, agrees with both. ALL WEEDS, *and the refuse of vegetation, should be banished*

from rabbit feeding. Such articles are too washy and diuretic, and can never be worth attention, whilst the more solid and nutritious productions of the field may be obtained in such plenty, and will return so much greater profit. Rabbits may, indeed, be kept, and even fattened upon roots, good green meat, and hay: but they will pay for corn; and this may be taken as a general rule:—*Rabbits which have as much corn as they will eat, can never take any harm from being indulged with almost an equal portion of good substantial vegetables.* However, the test of health is, that their dung be not too moist. Many, or most, of the town feeders never allow any greens at all; the reason, I suppose, because they feed almost entirely on grains. The CORN proper for rabbits: oat, peas, wheat; pollard, and some give buck wheat. The GREENS and ROOTS, the same as our cattle crops, namely, carrots, Jerusalem artichokes, and, if potatoes, baked or steamed. Lucerne, cabbage-leaves, clover, tares, furze. I have had them HOVEN from eating rape; and, not improbably, mangoldt might have a similar effect. Clover and meadow hay, pea and bean straw.

Among other field trash, hog-weed (the vegetation of the wild parsnip) has been seriously recommended as food for rabbits, and even for labouring horses, which, so fed during several weeks, must have had very light work, or very light bellies. On moving out of Middlesex in 1790, to Pamber-House, near Basingstoke, Hants, I took with me a favourite stock of rabbits, in the highest condition. Being particu-

larly engaged for the first fortnight, I scarcely bestowed a look on my rabbits. When I saw them, instead of the well-fed, merry, gamesome animals, as they formerly were, I beheld a parcel of moping, pot-bellied and scouring creatures, which had lost all the fine solid flesh put upon them by former high keeping. On demanding the cause of this unfavourable change, I discovered it to be in the quantity of hog-weed with which they had been daily supplied. This being discontinued, they soon recovered their pristine condition.

Rabbits are generally sold from the TEAT, but there is also a demand for those of larger size, which may be fattened upon corn and hay, with an allowance of the best vegetables. *The better the food the greater weight, better quality, and more profit,* which I apprehend to be generally the case in the breeding of all animals. Some fatten with fresh grains and pollard. I have tried all wheat, and all potato oats, comparatively; but could find no difference in the goodness of the flesh. The rabbit's flesh being dry, the allowance of succulent greens may tend to render it more juicy; and I suppose the old complaint of the dryness of the flesh in Devon beef entirely fed with hay, might be remedied in the same way. Rabbits are in perfection for feeding at the FOURTH or SIXTH month; beyond which period, their flesh becomes more dry and somewhat hard. It requires THREE months, or nearly so, to make a rabbit thoroughly fat and ripe: half the time may make them eatable, but by no means equal in the quality of the flesh. They may

yet be over fattened, as appears by specimens exhibited a few years since, at Lord Somerville's show, which were loaded with fat without and within, like the best feeding sheep; and at the late London cattle-show, two were exhibited, one of them exceeding the weight of 15lbs.

The FLESH of the rabbit is esteemed equally digestible as that of fowls, and equally proper for the table of the invalid. This seems to be the general sentiment, especially with regard to the sucking rabbit *boiled*. There is, nevertheless, some discrepancy of judgment between our sages of the table, as to the preference due to the wild or tame rabbit. In our opinion, the flesh of the wild rabbit is most savoury and substantial, that of the tame and home-fed, most delicate and chicken-like. We frequently observe a deep yellow suffusion, tinging the whole flesh and fat of the rabbit, and the same also in the turkey and in beef. I could never conjecture or obtain any satisfactory cause for this phenomenon. Is the cause biliary? Of the two rabbits at the late show, one was white as silver, the other a deep yellow, yet apparently both equally healthy.

A laughable incident occurred on the exhibition of *Rabbits*, at the late Lord Somerville's show. Calling on my noble friend the following day, in order to talk over relative topics, his Lordship said to me with an appearance of apprehension and distrust—Why, do not you think that rabbits were sent merely for the purpose of throwing a ridicule on the show, and ought they to have been received? I assured him I thought very differently, and that

they were no doubt admissible, being a species of live stock of great consequence as *national* food, and in universal demand, thence entitled to exhibition, like other stock, in their utmost perfection of proof. My lord was satisfied.

CASTRATED rabbits might be fattened, no doubt, to the weight of upwards of ten or even fifteen pounds, at six or seven months old. The operation should be performed at the age of six or seven weeks. I have not succeeded at castrating the rabbit, but am informed it is successfully practised in the land of capons, namely, Sussex, near Chichester, where, on the average, not one in three hundred is lost by the operation, which is performed at five or six weeks old. With respect to QUANTITIES of corn consumed in fattening;—August, 1813, killed a young buck, which weighed three pounds, fit for the spit; it was put up in good case, and was only one month in feeding, consuming not quite four quarts of oats, with hay, cabbage, lucerne, *bunias orientalis*, and chicory; the skin, silver, and black, worth four-pence.

In SLAUGHTERING full-grown rabbits, after the usual stroke upon the neck, the throat should be perforated upwards towards the jaws with a small pointed knife, in order that the blood may be evacuated, which would otherwise settle in the head and neck. It is an abomination to kill poultry by the slow and torturing method of bleeding to death, hung up by the heels, the veins of the mouth being cut; but still more so the rabbit, which in that situation utters horrible screams. The ENTRAILS

of the rabbit, whilst fresh, are said to be good food for fish, being thrown into ponds.

The rabbit is a CARESSING animal, and equally fond, with the cat, of the head being stroked; at the same time, it is not destitute of courage. A whimsical lady admitted a buck rabbit named as above (Corney Buttercup) into the house, where he became her companion for upwards of a twelve-month. He soon intimidated the largest cats so much, by chasing them round the room, and darting upon them, and tearing off their hair by mouthfuls, that they very seldom dared to approach. He slept in the lap by choice, or upon a chair, or the hearth-rug, and was as full of mischief and tricks as a monkey. He destroyed all rush-bottomed chairs within his reach, and would refuse nothing to eat or drink, which was eaten or drank by any other member of the family.

No live stock is less liable to DISEASE than the rabbit, with regular and careful attention, such as has been pointed out, so that any sudden and accidental disorder is best and most cheaply remedied by a stroke behind the ears. But want of care must be remedied, if at all, by an opposite conduct, and improper food exchanged for its contrary. Thus if rabbits become POT-BELLIED in the common phrase, from being fed on loose vegetable trash, they must be cured by good hard hay and corn, ground malt or pease, toasted bread or captain's biscuits, or any substantial and absorbent food. Their common liver complaints are incurable, and when such are put up to fatten, there is a certain

criterion to be observed. They will not bear to be pushed beyond a moderate degree of fatness, and should be taken in time, as they are liable to drop off suddenly. The dropsy and rot must be prevented, as they are generally incurable: nor is a rabbit worth the time and pains of a probable cure. Of the 'madness in tame conies,' on which our old writers hold forth, I know nothing.

By 7 and 8 Geo. IV. if any person unlawfully and wilfully in the night time take any hare or coney in any warren or ground lawfully used for the keeping thereof, whether enclosed or not, every such person shall be guilty of a misdemeanor; and persons guilty of the same offence in the day time, or using any snare or engine, are subject to a penalty of five pounds. But this does not extend to the taking in the day time any conies on any sea bank or river bank in Lincolnshire so far as the tide shall extend, or within a furlong of such bank.

Ampthill Rabbit Bazaar. I have stated at the commencement of this article, that the large concerns had generally ceased. Of late, one has arisen at Ampthill, Beds, upon a more extensive scale than ever before attempted, established by J. H. Fisher, Esq. an agent of his Grace the Duke of Bedford. Upon so extensive a plan, indeed, is this new undertaking, that it may well be styled our grand National Rabbit Bazaar. The building, situated upon an eminence, is square, somewhat resembling barracks, with a court withinside the walls, and with thirty acres of fine light land adjoining, under culture of those crops known to be best

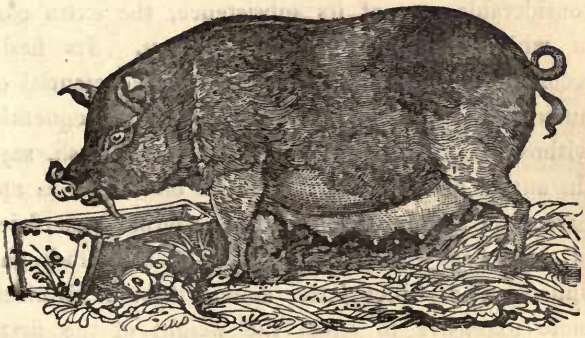
adapted to the nourishment and support of rabbit-stock. It was proposed to keep between four and five thousand breeding does, which number is probably now complete. The young rabbits, from seven to nine weeks old, are sent to Newgate and Leadenhall markets, fifty to sixty dozen, weekly. The quantity of dung produced, which is reserved with the utmost care, and free from any extraneous substances, must be very considerable and valuable. A number of men and boys are employed in the concern, under the direction of an experienced foreman, and the utmost regularity of attention observed with respect to management, feeding, and cleanliness.

This Bazaar has been honoured by the visits of persons of the highest rank; of his Majesty William IV. when Duke of Clarence, his Grace the Duke of Bedford, Lord Holland, Lord Vernon, and a number of ladies and gentlemen.

I repeat the above particulars as *memorable*, although this great undertaking came to an end last year (1833), like so many former ones of a similar nature, but on a far inferior scale. Mr. Fisher probably found, though somewhat too late, that his other great concerns were fully sufficient to engage the whole of his attention. I have also been informed by experienced persons, that the expences necessarily attendant on such a concern were too heavy to admit of an adequate return of profit, one material item of which consisted in the too great distance of Ampthill from the metropolis. Nevertheless, it appears that three gentlemen were about to continue this undertaking on a smaller scale, at or near Shepherd's Bush.

SECTION XVI.

Swine.



THE above figure was taken of a sow bred from a cross with a Chinese black breed, the property of Arthur Mowbray, Esq. of Sherborn, Durham. She was at the time suckling nineteen pigs, being the third litter within *ten* months, the whole amounting to fifty pigs. There must, however, have been a mistake in the MS. with respect to the number of months, since the period of gestation in the swine is *four* months. In the accounts of extraordinary number of litters in a year, it must be understood that the pigs must have been taken early from the teat, chiefly as roasters, since the sow will not desire the boar again, until *the turn of the milk*.

Sus. Porcus—the swine, pig, or hog, is too well known in all countries, to need a repetition of its generic description. It is one of the most useful, and perhaps the most profitable of all the domestic animals, its flesh being greatly conducive to the purposes of luxury, but still more universally to the support of human life, in the laborious state. This animal is the general collector of offal and waste, whether in town or country, thereby foraging for a considerable part of its subsistence, the extra cost of which it moreover amply repays. Its flesh, second probably to beef, is the most substantial of human aliment, and may be eaten most frequently without disgust. The solidity of swine's flesh, says the author of the General Treatise on Cattle, is apparent on a comparison of the external superficies of a fat hog, with that of a fat sheep or bullock, the dimensions of which latter animal must be so much more extensive to equal the weight of the first; which is also aptly illustrated by the well-attested examples of individual hogs, fed to the enormous weight each of one hundred, and even one hundred and eighty-two stone, of eight pounds to the stone. This is also said to differ from all other land animals, in the circumstance that the adipose substance, or fat, entirely covers his muscular flesh, in one continued layer or stratum. The upright and pendant ear form specific distinctions in the swine, the latter being the general indication of larger size. The Single-Hoofed Hog has undivided hoofs on all the feet, and resembles the common kind in every thing else; they inhabit Upsal and other places in

Sweden, and they are mentioned by the ancients. Mr. Coke of Holkham had a breed of them about 25 years since, and they were also occasionally to be found in the neighbourhood of Windsor: the Publisher has lately (March 1834) had a specimen of this variety in his possession; it was consigned, by Mr. Revett of Chelmsford, to Mr. John Cross of Leadenhall Market.

USES.

The well-known culinary uses of swine's flesh are—as ROASTING PIG and PORK—FRESH and PICKLED PORK—BACON—HAMS—BRAWN—SAUSAGES of various kinds—PUDDINGS of the blood; whilst the LARD is valuable both for kitchen and medicinal use, and the SKIN, BRISTLES, and HAIRS, for the purposes of manufacture.

Bacon, in consequence of the vast quantities imported from Ireland, has been retailed in the metropolis, during the last and in the present year, at the reasonable prices of from 4*d.* to 8*d.* per lb. In dressing our bacon hogs (Hants) we always singed them: the practice also of Berks; whilst most or all of the other bacon districts scald. It is remarkable, that little or no bacon has ever been made but in the West, and in London, the Eastern districts generally preferring pickled pork, and being purchasers of the inferior quantity of bacon consigned. I never could discover any difference in the flavour or quality of bacon, whether singed or scalded.

The SPECIES are Asiatic, African, and European, with which, perhaps, may be included the American PECCARY. The orifice on the loins of the American Peccary, is an outlet for the secretion of a gland which smells powerfully, not the navel of the animal (as erroneously stated by some writers); its probable use is to enable the sexes to find each other in the large woods of the country which the Peccaries inhabit. The navel will be found in the usual situation. The Æthiopian swine is large in a wild state, and has wattles under the eyes. The VARIETIES produced in this country have generally originated in crosses with our indigenous breed, from the three grand specific divisions above cited; chiefly from the CHINESE, the black AFRICAN, the SPANISH and PORTUGUESE, of nearly the same colour, all more or less bare of hair; the red, or more properly yellow ITALIAN, and the WILD SWINE of the neighbouring continent. The motive for these foreign crosses has been to abate and reduce the redundant size and bone of our native stock, and to substitute superior delicacy of flesh and aptitude to fatten; both which views have succeeded, the latter, in the judgment of the author above quoted, in an ordinate degree. Another motive has been the extreme prolific quality of the southern and wild breeds.

BRITISH VARIETIES.

For our VARIETIES of pigs at large, I repeat my reference to Lawrence's General Treatise on Cattle, the only book, probably, in which they have ever been enumerated and described, the author himself having been a considerable breeder and feeder. It will be sufficient to advert to the most material, and most noted, which are—the BERKS, HANTS, HEREFORD, SHROPSHIRE, YORKSHIRE, and MIDLAND county, for large size as bacon hogs; and the Oxford, Bucks, Essex, Suffolk, and Norfolk, as smaller breeds for pork-feeding. All the above breeds are more or less imbued with foreign blood, the larger breed chiefly through the medium of the Berkshire cross, that county originally taking the lead in the foreign improvement. Berkshire and Hereford boars and sows have been used, within the last twenty or thirty years, in the improvement of the Irish breed of hogs, a coarse, hairy, and leggy variety, at length successfully improved into a form so nearly resembling that of our English stock, as to be with difficulty distinguished. Of those, both dead and alive, Ireland has exported immense quantities to this country. In the spring, 1830, according to the public papers, an Irish drove, amounting to upwards of fourteen thousand, passed a turnpike in the west.

During many years past, indeed, PIG-BREEDING had greatly declined among us, and we had been supplied in proportion, not only with bacon and pork,

but with stores for feeding, from Ireland. Demand, however, has had its necessary effect on a species of animal so speedily reproduced, and pigs are found in great abundance throughout England. The price nevertheless gradually advanced, and in September 1826, Chappell, the crack porkman of Skinner-street, London, sold the prime joints of his best milk-fed pork, at one shilling per lb.; the price, however, of pigs, declined during the year 1829, with that of other live stock, the markets at length having been abundantly supplied: yet Mr. Chappell (spring 1830) sold his prime joints at 10*d.* to 10½*d.* per lb. with a brisk sale.

The Irish BACON has been greatly improved, and is not so easily distinguishable, as formerly, from English; nor is there such a difference in price, both Irish butter and bacon often exceeding the English, in that respect. Scarcely any bacon is now made in or near London, the distillers, who formerly fed such great numbers of hogs, having long since exchanged that species of stock for bullocks; and subsequently, many of the houses have given up all live stock, disposing of their wash and grains to the cow-keepers. The starch-houses of the metropolis keep about four or five hundred hogs each, of which they make somewhat more than two annual returns, fat; or perhaps more, since a smaller and quicker feeding breed of pigs has come into use. These houses, in the year 1829, will have turned out nearly three thousand fat hogs. More than double that number were fattened in and near the metropolis, by six houses, upwards of half a century since, and

before the revolutionary war with America. O these, the great house at Lambeth, Stonard and Curtis, had room for nearly one thousand, and that of the late Mr. Suter, of the same place, the reputed quickest, cleanest, and best feeder in England, equally reputed for the quality of his stock, nearly five hundred. Cooper of Bow, one thousand. At the same period the distillers all fed hogs, Sir Joseph Mawbey, at Lambeth, having sties to contain two thousand. The great and constant succeeding import of Irish bacon, necessarily reduced the number of hogs fed in England; as on the other hand, the general disuse of hair powder, which supervened about the commencement of the French revolution, the change of fashion, in all probability, being introduced by Francis duke of Bedford, proportionately diminished the want of starch.

The markets for dairy pork, near London, of which Barnet is the chief, have not of late years exhibited those considerable numbers formerly exposed to sale there, the demand being supplied irregularly, and from various quarters. Indeed, this market has, within these few years, been removed from Barnet to Finchley. A similar change has also taken place in the sale of dairy pork, in former days almost entirely in the hands of London Jew butchers, of whom now only one remains, and he no longer purchases his pigs alive, but has his pork ready killed, sent to him from the country; a practice become nearly general. Dairy pigs are also bought at the dead markets of Newgate and Leadenhall. From such causes

it will naturally be inferred, that pig-breeding has been neglected in this country; and in truth, the stock of those districts which I have just quoted is not equal in size and form to that which they once possessed. The Herefordshire, half a century since, were the crack stores for the London feeders, and the *Turners* were the chief men for collecting them; but now it seems both the Turners (at least as pig-dealers), and the large breed of Hereford and Shropshire swine, are nearly extinct. Is Herefordshire, then, one day destined to lose her large and noble breed of oxen in the same way? The vicinity of Peterborough, Northamptonshire, is said to produce some of the best large-sized swine of the present day. We thus exemplify the motto of the old Almanack makers, *omnium rerum vicissitudo* —all things change.

The West India Islands and the Azores ought not to be forgotten, as producing a fine and delicate breed of PIGS, originally it may be presumed, Spaniards, which have at various periods found their way hither; such have been used for the purpose of refining our native breeds. South America has also a fine breed of pigs. At Lord Somerville's show, in 1809, Mr. Gibbs, seedsman to the Board of Agriculture, exhibited a black wild pig from *Monte Video*. The sow and litter were imported together, and were very savage. They were deep in form, with very fine bone. One of them fattened very young to twenty-four stone, and although ripe and carrying a sufficient quantity of *flair*, it had more flesh in proportion, in the opinion

of the butcher, than he had ever before witnessed. There was the least possible offal, the inside seeming to be filled with flesh. It was remarked that the great gut was smaller than the smallest gut of a small pig. This pork was excellent, inclining to the savoury.

It has never occurred, that I am aware, to our breeders, to preserve any of the fine foreign varieties pure, whence possibly a still more delicate pork might be raised than any we at present possess, granting the attempt were made with those which furnish muscular flesh or lean, as well as fat. Some of the wild swine of the opposite continent are well adapted to such purpose, and are besides very prolific. Most countries abounding with forests have herds of wild swine; these animals, under such circumstances, being always ready to quit domestication. I remember, very many years ago, two young boars retiring, on French leave, to an extensive wood, then the property of Mrs. Eldred, between Colchester and Mersea Island, which became subsequently, during several years, the terror of the neighbourhood. Hunting the wild boar in India is a sport attended with considerable danger, of which there is an amusing account in a late number of the Sporting Magazine.

CONVENIENCES FOR SWINE.

Room and Ventilation are objects of the greatest import where numbers are kept, and dry lodging, without which essentials success must not be ex-

pected. Nor are swine, in whatever state, proof against excessive cold, for I have known instances of their being frozen to death in their sty, and have always remarked that severe weather materially checks their thriving, unless they be sufficiently defended from the chilling effects of the air.

The STY, situated upon a dry foundation, as well as sheltered above, should be paved at bottom, to the end that it may be kept clean and dry, the operation necessary for which should be daily performed, for although pigs will wallow in the mire, they are yet more thrifty in clean lodgings. As swine confined usually employ their leisure time in demolishing, with their teeth, the wood-work within their reach, the modern cast-iron TROUGHS are profitable; at any rate, wooden troughs ought to be iron bound. A RANGE of sties is convenient where numbers are fed, on account of the greater facility of attendance, and of the distribution of wash reserved in the cistern.

According to an ancient and general opinion, not, however, entirely supported by either ancient or modern experience, swine do not long succeed, if kept upon the same ground in considerable numbers, infecting each other with a malignant atmosphere. In opposition to such an idea, history informs us, that the Roman feeders possessed herds of swine, to the amount of two or three thousand each; and I have often seen upwards of two thousand large hogs fattened under the same roof, where in a long course of years, no mortality had been experienced or apprehended. The opinion in question has, most probably,

arisen from the circumstance of too great number of pigs bred within confined limits, and a defective ventilation, assisted, perhaps, by a wet or boggy soil, and a want of cleanliness.

PURPOSES IN FEEDING.

These are either for mere domestic use, or for profit by sale; and the choice of plan lies between BREEDING, and purchase of STORES; the former attended with most trouble, but proportionate emolument. Swine are not generally kept to advantage, unless where some waste remains to be gathered, or cheap articles of food can be grown for them; but the rule admits of exception in favour of those who are well skilled in the animals themselves, and in the turns of the market. The wash and offals of a moderate kitchen will go a considerable way towards the support of a breeding sow, and, in return, the produce of the sow will operate in a comfortable proportion towards the support of the kitchen. To embrace in our view the profits of the farm and of the public, it has been said, and, according to my experience, upon sufficient grounds, that *a hundred pounds, laid out in swine, will return a greater profit than the same sum invested in any other kind of live stock;* and that no other article of flesh provision can be raised and prepared for market so soon as pork: in consequence, it must be materially instrumental in the production of plenty, and in restraining exorbitance of price in the first necessaries. The

seasons most usually advantageous for the purchase of pig-stock, are, at Old Michaelmas, after clearing the harvest fields, and in the months of March and April.

CHOICE OF VARIETIES.

The reader is referred to our brief but sufficient list of these, from which, according to his convenience or opportunity, he may make his election: or without farther trouble, he may very safely have recourse to the HOME-BREDS of his own district or vicinity, since we are so far generally improved, that in whatever part of England a man may reside, he need not fail to purchase pigs for his money, which a sufficiency of good meat will fatten to profit.

For BACON-HOGS, in a commercial view, the regular large varieties are, doubtless, best calculated, as endowed with the important qualification of *growth*, to make use of the technical term, as well as of breeding fat. I readily acknowledge, however, this is an old-fashioned opinion, the large varieties having been not only long out of vogue, but the best of them even out of existence. I remain yet unconvinced.

This property of growth, or accretion in stature, in animals to be fattened, has been of late years slighted, since the fashion has prevailed of confining our attention solely to the consideration of fattening; but, on actual experiment, I believe it will be found, that a well-shaped animal, of whatever species, endowed

with both properties, will make the heaviest return, and in an article of superior quality, for the quantity of meat consumed.

The best PORK, in course, must be expected from the smallest, most delicate, and fine-fleshed varieties; for example, as has been before observed, those which have resulted from crosses with the southern stock, or with the wild boar of the continent. All our reputed porking breeds have this mixture in various degrees. But I must here put in my plea of objection more strongly, and in the name of good old English ROAST PORK, against the modern principle of sacrificing every thing to fat, and consequently against those breeds, too frequently and deeply crossed with the foreign forms, which produce no lean. In bacon, or salted pork, all fat may be tolerable, and even may be preferred by some palates; but in roasted pork it is not possible but that a certain portion of lean flesh must be desirable, scarcely a taste of which is to be found in the hinder loins, at any rate of the species under consideration. The little flesh, too, yielded by such pork is of an inferior greasy quality, and insipid flavour, perhaps necessarily, from being so thoroughly saturated with the fatty material; and should pigs of this description be slaughtered before they have become ripe or fat, their pork will be ordinary, and their weight very short of the profitable standard. On such considerations, the western pigs, chiefly those of Berks, Oxford, Beds, and Bucks, possess a decided superiority over the eastern, of Essex, Suffolk, and Norfolk; not to forget another qualification in the former, at which

some readers may smile, namely, a thickness of the skin, whence the *cracklin* of the roasted pork is a fine gelatinous substance, which may easily be masticated; whilst the cracklin of the thin-skinned breeds is roasted into good block tin, the reduction of which would almost require teeth of iron. The western porking breeds make handsome sides of delicate bacon and superior hams for family use. The eastern pork is, however, smaller, and perhaps apparently more delicate, than that here described as in reality far superior. The eastern are also the quickest feeders. Devon pork has of late years come much into favour in the metropolis, of which a constant weekly supply may be found at a shop in the Strand, near the New Church, where also a peculiar kind of delicate light-coloured forest mutton is sold.

BREEDING.

The DURATION of LIFE in the swine is said by naturalists to extend to twenty or thirty years, who report that the BOAR continues to grow to the end of the term. Swine are ready for procreation at the age of seven months, but the male is unprofitable for that purpose until twelve months old, and is in his prime at two years. In other respects, the age of swine is matter of small concern, since they are never kept until they are old; and it is the custom with many breeders to slaughter even their most prolific sows in the second year. The young sows to be preserved for breeding, should be chosen with deep and capacious bellies, the full number of teats, and of the

most extensive or widest general form. The term of GESTATION in swine is four months, or one hundred and fifteen days, with a very few days' variation, producing three litters of from five to twelve pigs each, in about eighteen months, supposing the pigs to be weaned; but in two or three months less time, the pigs being suckled for roasters. Greater numbers to a litter are often produced, more particularly by the China breeds and their crosses, the most prolific of swine: and we had a late instance in Essex of a sow of that breed, the property of Mr. Tilney, of Writtle, which farrowed 301 pigs in 13 litters, out of which she actually brought up 177, or more than 13 to a litter. I have, however, found, and more especially in the large breeds, that a litter of a moderate number is most profitable, since in the numerous litters there are generally several undersized and weak individuals which never attain much value. Thus a litter of nine or ten good pigs may bring more profit than a litter of thirteen or fourteen.

After receiving the BOAR, for which the middle of SEPTEMBER and the middle of MARCH are the most advantageous seasons, the sow should be confined until her irritability has ceased, which will return within a few days of her parturition, a sign which demands attention. After she has become heavy, she should be securely lodged by herself, lest others injure her by lying upon her; and, at any rate, during the time of bringing forth, as other swine would devour her offspring as they fell. According to the above breeding periods, the pigs will come in the middle of January and of July; in the first

month with the spring before them, and their nursing mother, in the interim, to defend them from the winter's cold; in the other, they are nurtured in a warm season, weaned in the harvest field, and then enabled to endure the rigours of the approaching winter. It has proved generally unsuccessful to rear pigs in the winter season, although they may be bred for roasters.

SIGNS of approaching PARTURITION, in addition to the one above noted—swellings of the bags of milk, *decreased* size of the belly, sleepiness. A vigilant swineherd, solicitous to preserve all the pigs, will watch and attend the farrowing sow, day and night, because some sows are so unwieldy, or so careless, as, perhaps, at every farrowing, to lie upon, and crush to death a part of their young; others, from an irregular and vicious disposition, will devour a part, or even all of them. As one precaution, the breeding-sow ought not to be kept fat and heavy, yet in good heart and full strength. Few keepers will, or ever do, go the length of attending the sow, satisfying themselves with the persuasion that she will be safest left to her own care. To those who are willing to undertake such an office, a hamper, or basket of straw, will be found convenient, in which to withdraw the pigs from danger when it may be needful, in order to replace them properly, as occasion may suit; which practice it may be necessary to repeat during two or three days, until the pigs shall have acquired strength and caution sufficient to secure themselves. It may, indeed, be profitable to lose part of a too numerous litter, but accident will not respect

the quality of the pigs, and the most puny and worthless may escape. None must be saved beyond the number of teats, and, upon an average, NINE is a sufficient number. Would the sow submit quietly, STRAPPING her jaws during the first day and night, with the trouble of releasing her at her meals, would be an effectual security, in case of unnatural voraciousness. As to very numerous litters, our newspaper columns are periodically stocked with triumphant accounts.

The PIGGING-HOUSE should be warm and dry, eight feet square, and secure from the inroads of foxes and other vermin, which have been known to steal sucking pigs from the sleeping or absent sow. Short straw is preferable for a bed, but in not too great quantity, lest the pigs be smothered beneath it; this should be renewed with due regard to cleanliness, and as the unwieldy sow is apt to crush her young against the wall, it is proposed, in the New Farmer's Calendar, to append an inclining or projecting rail around, beneath which the pigs may escape, on the down-lying of the sow. Sows which are given to devour their pigs, or have teats too large and coarse, or yield too thick and unwholesome milk, should be discarded as breeders, but a small number of pigs at the first litter is no valid objection.

The FIRST FOOD should consist of warm and nourishing wash, whether from the kitchen or dairy, thickened with fine pollard or barley-meal. A portion of strong beer may be added as a cordial, should circumstances render it necessary. The common wash, pollard or meal mixed with water, if scalded,

the better. The same diet is proper for the pigs to partake of whilst sucking. The sow can scarcely be too well kept during this period, and, in addition to two meals as above, should be allowed a middle one of dry meat; for example, a pint of peas, or beans, with half a peck of carrots, boiled potatoes, or the like. Potatoes alone are a poor and watery dependence, nor should pigs be fed with them or any loose vegetable trash, until three months old. The sow may be let out to air herself at pleasure, and, after a while, with the pigs to accompany her, but never in bad weather.

CUTTING and SPAYING the young pigs is performed at six or seven weeks old, according to their strength: in a week after which they may be WEANED. After weaning, shut up the sow closely, feed her well, and on the reflux of the milk, she will express very loudly her desire for the company of the BOAR. It is necessary to repeat, that sows are voracious, and occasionally fierce and savage animals, and have actually devoured young children. The sow is SPAYED whilst she gives suck, and the boar safely CASTRATED at any age.

RINGING the snouts of pigs should be performed at weaning time, and after they shall have recovered from castration. In Cheshire they cut away the cartilage, or gristle of the snout, in place of inserting a ring, a practice which I have not hitherto essayed.

KILLING. The following extraordinary expedition, particularly for the country, was lately used by Frederic Green, Governor of the Poor-house

at Brewood, in Staffordshire. Having betted ten pounds that he would kill, scald, well and completely dress, open, &c. eight pigs in *four* hours, without any other assistance whatever, than having the scalding water conveyed to him as he wanted it; this task he performed in three hours, fifty-six minutes. One of the pigs (surely hogs) weighed 380lbs. and none less than 240lbs., or thirty stone, London weight. Green, however, had the advantage of a windlass to draw the pigs out of the scalding tub.

ENCOURAGEMENT TO PIG-BREEDERS.

"Lancashire, April 1813. Pigs of six weeks old, which sold two months ago at four shillings each, are now worth twenty shillings each."

STORE-FEEDING AND MANAGEMENT.

WEANLINGS should have at least one month of delicate feeding, warm lodging and care. The same kind of food should be continued to them three times a day, to which they were at first accustomed with the sow. Corn and pollard are indispensable in pig-feeding; they may, indeed, be reared more cheaply, but not then so profitably; and the breeder who sagaciously plumes himself on the *hardiness* of his stock, of whatever species, will not always have to boast of form, size, and good plight, into the bargain. On the other hand, it is readily acknowledged, that the round and barrel form of a pig

making all fat, is most cheaply maintained, and the soonest ripe.

GROWING STORES and SOWS are fed through the winter with the run of the barn-yard, upon roots of all kinds, including rutabaga and mangold, cabbage, &c. a ration of corn of some kind being allowed, with wash. Meal of any kind—bean, pea, oat, barley, rye, buck-wheat, or tare, and linseed, boiled with potatoes, make good wash. Pea-wash alone scours young pigs. Pulse, or corn of any kind, are advantageously given in the straw to pigs, which are good threshers. In autumn, and a plentiful season, swine will subsist themselves abroad upon acorns: in summer, upon clover, lucern or tares; but very young pigs particularly ought not to be left abroad in continual rains, and will always pay for a daily moderate feed of old beans with the clover. Swine turned to shift upon forests or commons are apt to stray and hide themselves for a considerable time; the ancient and ready method to collect them is by the sound of a horn, with which they have been accustomed to be fed. Where a considerable herd is kept, and they are shifted upon the waste, they should be attended by a boy to prevent trespasses.

FATTENING FOR PORK AND BACON.

Pigs will FATTEN either in confinement or at large in the yard. When in sties, care should be taken that the pigs be all *ringed*, or they will not lie quiet; also that, when a number are fed together, any one at

which the rest may have taken a distaste, be immediately withdrawn, or in probability they will tear him to pieces. For the same reason, a stranger should never be introduced. The fewer together, the more quietly and speedily they fatten, and by consequence, they succeed best singly. The troughs with SLIDING BOARDS before the meat, giving way to the snout of the pig, and shutting on his withdrawing his head, generally used in Hants and Berks, greatly prevent waste. They used, I recollect, to be provincially denominated *witches*.

WEANLINGS are fattened for delicate pork, chiefly in the dairies, where they are made ripe in a few weeks. Generally a pig of five or six months old will be fattened in seven, or eight, or twelve weeks, dependent on his condition. Small bacon hogs will be fattened in twelve weeks, the larger in sixteen to twenty. They should be kept perfectly clean, dry, and comfortable, for which daily attendance is necessary; and it is preferable, where time can be spared, to feed thrice in the day. The most correct feeders, and those largely concerned, endeavour so to apportion the meal, that the trough may be entirely cleared, and yet the appetite of the animal thoroughly satisfied; a plan which has been proved in a thousand examples to fatten the most speedily, and make the fattest hogs; so totally opposite, nevertheless, to the ancient and still too common country method of filling the troughs at every feeding hour, whether empty or not. I have witnessed an old farmer repeatedly urging his servant to the performance of this duty, whilst the hog-trough remained constantly replenished with a

mingled mess of meal and dung, of equal use to the hogs to lie and wallow in, as to feed upon. To speak guardedly, I have no doubt that, in former days at least, one bushel of corn in three has been in this mode converted to dung, without ever having entered the bodies of the animals. Two or three years since, a farmer published the following experiment, as an improvement of the established mode of pig-feeding. He took two pigs of the same litter, and of equal weight, and fed them apart, one in the usual way on barley-meal mixed with swill, the other ate his meal dry, and had his drink given him an hour afterwards. At the end of six weeks, both hogs were weighed, when the one fed on dry food was a stone heavier than the other! The reader will judge whether this difference arose from the constitutional superiority of the heaviest pig, or the superiority of the new mode of feeding. Experiments on the point may be easily made. The following is also newspaper information. On December 29th, 1828, two pigs of the same litter were killed by Mr. Williamson, at Scarby, near Brigg, one weighing 43 stone 10lbs., and the other 47 stone 6lbs. They were little more than three months old. This being correct, is a more profitable instance of pig-breeding than ever came within my knowledge. I wish Mr. W. had stated the breed of these pigs.

Various articles for FATTENING swine.—Skimmed milk, and pea, oat, or barley meal, rank first in point of excellence with respect to the quality of flesh, milk-fed pork being superior to any other description, not only in delicacy of flavour, but in substance and weight, none weighing so heavy in proportion as the

milk-fed animal. Hence the bacon of the dairy counties is superior. Milk will fatten pigs entirely, without the aid of any other food, a practice sometimes in the dairies; which, however, as I have been lately informed by Mr. Chappell, has been long discontinued in Beds, and the best dairy counties, where a quantity of corn is always allowed with the milk, rendering the pork more substantial, and of superior flavour.

CORN-FED pork is next in value, PEAS, OATS, and BARLEY being the best adapted grain. BEAN-FED pork is hard, ill-flavoured, and indigestible; being potato-fed, it is loose, insipid, weighs light, and wastes much in cookery. A similar character is given of pork fed on maize or Indian corn, by an experimental feeder in Warwickshire. To mix potatoes in the food of fattening pigs, is deceptious, deteriorating the pork in exact proportion. Hence the ordinary Irish pork and bacon are generally inferior to the English, and the market price so in proportion. This inferiority has lately been stated to me, by the estimation of Mr. Charles Cotterill, an eminent dealer in Irish provisions, at three ounces per lb. upwards. CLOVER-FED pork is yellow, unsubstantial and ill-tasted: fattened on ACORNS, it is hard, light, and unwholesome; on OIL-CAKE-SEEDS or CHANDLERS' GRAVES, it becomes loose, greasy, and little better than carrion; on BUTCHERS' OFFAL, luscious, rank, and full of gravy, but of a strong and disgusting scent. Compared with the general consumption of pork, the real DAIRY-FED meat bears a very small proportion, and the sale of it in the metropolis is comparatively in few hands, always commanding a superior price. In

some parts of France, they SKIN their pigs intended for fresh meat.

A pig will eat two or three PECKS of corn or meal per week, in fattening; a hog upwards of a bushel, in proportion to his size. The following is an example of successful feeding. "In the spring, 1805, Mr. Ivory, of Whitchurch, Salop, killed a hog of two years old, one side of which weighed 410lbs., the other 414lbs., total 46 score 14½lbs. or about 111 stone, dressed country fashion. He was purchased very lean at two years old, price four guineas, was fattened in between seven and eight months, and then valued at eighteen guineas; subsequently twenty-five guineas for him were offered and refused." This hog probably made upwards of thirty pounds at the then price, and might have consumed full forty bushels of corn. The Shropshire was formerly one of the largest, if not the largest, breed of hogs in Britain; I have fed many of them.

I have at length, through Mr. Squire, obtained the weight of Mr. Crockford's hog, bred and fed at his fine farm near Newmarket, scarcely, I understand, to be paralleled in England, for its excellence of arrangement, convenience and style of buildings. The hog, when killed, was two years old, and weighed seventy-eight stone, horseman's weight, fourteen pounds to the stone, or one hundred and thirty-six stone and a half, London weight. The hams weighed six stone each, and head fifty pounds. This hog having been got by a boar bred at Mr. Crockford's farm, out of a sow bred in the neighbourhood, is *warranted* of the *true* Suffolk breed. That it was

bred in Suffolk, or near to that county, there is no question; but having known the Suffolk breed, through a long course of years, as one of the smallest in England, and not being aware that it has been yet changed, I must beg leave to question its being, uncrossed, able to produce a hog of such a size. Such a chance is not upon the breeding cards. The fact is, pig-breeders, though in the vicinity of Newmarket, are not quite so correct in regard to pedigree, as the breeders of running horses. In truth, not only pigs, but stock of other kinds, never fail to be periodically introduced from districts where large stock is bred, into those where the small are established, and such individual introductions are no longer recollected or noticed after a while, producing only limited and occasional enlargement of size. In Essex, for example, the up-eared breed, which was originally, by comparison, small, became partially enlarged, and the ear changed to the pendant, by the introduction, many years since, of Berks, Hereford, and Shropshire boars. The original prick-eared breed yet remains, and it would be surely impossible to select a pure individual of that kind, capable of being fattened to equal the high weights of which we occasionally hear.

THE DISEASES OF SWINE.

Little success has hitherto attended the *doctoring* of swine, which are the most stubborn and intractable of patients. Thence PREVENTION is the only remedy deserving of any considerable share of the keeper's attention. This should chiefly extend to

the avoidance of infection by foul air, of damps and cold, and of the extremes of either starving or gorging the animals. Sulphur and madder are the best alterants, in foulnesses of the skin or habit. In the SWINE POX, the same medicines in small quantities, with treacle in the wash, fresh brewers' grains, or sweet pollard, the sties being well ventilated, or the animals aired abroad. Inflammation of the lungs, or HEAVINGS, seem to admit of no remedy, and are sometimes found to be constitutional or hereditary in swine. When the ears of swine crack, and become scabby in the field during the summer heats, they should be frequently anointed with tar and lard.

Four or five and twenty years ago, the late Mr. Tattersall requested of me to choose him a store pig to put up for fattening. I applied to Mr. Wynt, the then salesman, and we chose one at Finchley, out of a fine drove of *Herefords*, not then out of fashion. After the hog had been at Mr. Tattersall's two or three days, I received a letter from him to tell me it was taken very bad, in fact, dying. On inspection, I found the animal sleepy and torpid, refusing food, but occasionally throwing up the contents of its stomach, which consisted of half-digested meal. I immediately perceived the cause of the patient's malady. The feeder, determined to lose no time, had been assiduously filling the trough with food: the hog, being empty after a long journey, voraciously devoured it until its stomach was filled, and its digestive faculty totally overpowered. My prescription was abstinence from corn, a moderate quantity of sweet grains, thin wash, sulphur with it, and

in a few hours the hog was perfectly recovered. In the sequel, the feeder held up his hands with astonishment at the possibility of a hog being gorged with food!

Imported into Liverpool from Ireland, in 1829, (the number deficient by five weeks omitted) 153,000 pigs.—*Liverpool Mercury.*

I have been favoured by a very old friend with the following successful and instructive case, which I give from the MS. received: "In the autumn, 1828, one of my sows, four years old, a good mother, remarkably good-tempered, a cross between the Oxford and China breeds, with eleven fine pigs by her side, which had been farrowed three weeks, was suddenly seized with fever and inflammation. In twelve hours she became unable to stand, was very restless and apparently in great agony, no evacuation having taken place during two days. In consequence, I called in the aid of a noted cow-leech of the vicinity, who with much gravity promised me he would do what he could for her, but that all would be of no use. The operations of bleeding, anointing, and medicine were carried on for three days, at a charge of thirty-five shillings, when the sage doctor dismissed the case with the consolation to me, that he could do no more for the patient, and that it was impossible she could live.

"I then took her in hand myself, bled her, and gave her a strong dose of salts and jalap, which I succeeded in delivering, her jaws being held open by a rope attached to each. In about an hour thereafter, she had three pints of warm gruel.

and in less than three hours, I had the satisfaction of observing symptoms of great tranquillity and improvement in my patient. After leaving her at night on a clean and comfortable bed, I was gratified by finding her upon her legs the next morning, in a fair progress to recovery. I then repeated the above dose, somewhat reduced in strength, and still keeping her on warm gruel, when in two days my satisfaction was complete, on finding her quite restored to her former health, saving a little inconvenience from the obstruction of her milk. Of the pigs previously removed nine did well, and the sow became freed from all relics of her disease in ten or twelve days. I did not, however, choose to risk another farrow with her, therefore put her to the boar in October, and fed her for the knife. She was killed at Christmas, and made excellent bacon. Thus I saved a fine hog by calling in Doctor Common Sense, to atone for the insufficiency of the most skilful *leech* then and there going; and if my brethren, pig-breeders and feeders, would follow my example, in most cases, in my humble opinion, it would be to the benefit both of their pockets and their pigs."

SECTION XVII.

The Milch Cow.

THE genus *bos*, commonly called *neat*, and sometimes *black cattle*, stands at the head of our domestic animals destined for the use and food of man; and more especially for that most precious alimentary production, MILK, of such importance in rearing our children, and adapted to such a variety of other family purposes. For a constant supply of this invaluable resource, we depend on the female of this race, the harmless and docile cow, which is compelled to produce and part with that secretion, intended by nature for the support of her own progeny.

For a more extensive view of this subject, as well as that of SWINE, the reader is referred to "*Lawrence's General Treatise on Cattle:*" the present object is to impart such a degree of practical knowledge as shall be sufficient for the private family dairy, to minister to the convenience of proprietors, and to shield them from disappointment and imposition.

Our neat cattle are divided into various breeds or races, each distinguished by peculiar qualities, the most important of which are the natural propensity to breeding milk, or making beef; with the former of which lies our most material business. The English *milky* breeds chiefly are—the *Lancashire* and *Midland County* LONG-HORNS—the *Yorkshire* or Holderness SHORT-HORNS—the *Suffolk* DUNS—the *Nat*, or hornless *Red Devons*. In *Scotland*, the AYRSHIRE and the famous DUNLOP Cows—the *Fifeshire* and *Orkney—Homebreds* or mongrels, to be found in all parts, many of which prove useful dairy cows,—the *Alderney*. The long-horned breeds generally excel in the quality, the short-horned in the quantity of milk, individuals of the Holderness cows having been known to produce the enormous quantity of nine, and even ten gallons in a day. Such great milkers must necessarily afford but a thin fluid, not so well adapted to the butter-dairy as to the sale of the milk, excepting with respect to that material branch of the dairy business, pig-feeding. The signs of productiveness of milk in the cow are generally—"a thin head and neck, clean chaps, free from leather, deep and

rather flat carcase, wide hips, the bones perhaps inclined to be pointed, capacious udder, and large plain milk-vein; the last two signs worth all the rest."—*New Farmer's Calendar.*

The next considerations for a private buyer, are, SELECTION, and the means within his power to make it. These will depend materially on his situation, and whether his aim be to obtain something capital in this way, or to be content with the choice offered him by the markets or fairs of his vicinity. In the former case, his only method is recourse to some salesman or jobber, on whom he can depend, to supply him with a milch beast of the highest reputed established breed, for which he must expect to allow a proportionate price. Should he prefer to take pot-luck nearer home, let him beware of relying on his own judgment solely, unless that be very mature, for cow-jobbers and horse-jockeys have ever been cater-cousins; and I, who have considerable experience of them both, have never seen the least symptoms of their probable degeneration. He ought to be reminded, also, of another fact, lest his expectations should be too sanguine; it is that great and deep milking are sufficiently rare, even in our most milky breeds, and that among cows, great milkers are about as scarce as good horses. Indeed, this produce is so extremely valuable, that a constant great milker is worth almost any price, will amply repay the highest expense of keep, and should be kept to the latest period of her age, should her milking continue. On the other hand, no cow should be kept beyond the period of good

milking, but should be immediately replaced by a young and fresh milker.

It will immediately occur, that a single cow cannot possibly yield a sufficient annual supply of milk and butter for a family, however small, both on account of the necessary decrease of produce, as she advances in her pregnancy, and of the period in which it will be proper for her to go dry. *Two* cows will therefore be necessary for even a moderate family, and any surplus produce of this kind always finds a ready disposal. The second cow may be purchased at convenience, with respect to time and need of her in the dairy.

SIZE is a matter of importance, which must be regulated by the quantity and nature of the keep, which a proprietor may have at command. If he have a sufficient range of good grass-land, in course, he can afford to keep the largest breed of cows; but if he possess but little, and ordinary grass, or intend to shift his cows upon a common, he must make choice of small stock, which will shift with a moderate bite, and are not too heavy to labour through the day in order to fill themselves. However, on such provision only, excepting perhaps at the height of the season, the smallest heath-croppers, even if good milkers in proportion to their size, will make but a poor figure in the dairy, without a good allowance of extra provision.

Inexperienced persons often suffer loss and disappointment, by purchasing a stale milker, perhaps an old and worn-out cow, from some neighbouring dairy, by the disposal of which the seller is much

accommodated. It is generally most advantageous to have a fresh five-year-old beast in full milk, that is to say, with her calf a few days old by her side, or she nearly ready to calve. The calf may be either immediately sold as a suckler, suckled at home for the butcher, or reared, according to circumstances; but the first method is doubtless the most profitable, milk, butter, and pork, being articles of the greater worth and convenience. If a small, common-bred, low-priced cow be the object, no other consideration is necessary than her health, age, and milky indications, particularly that she have large *tackle*, in plain English a capacious udder, and that she be a *quiet* milker. This last is a matter of some consequence, since it is not quite sufficient that a cow produce a large quantity of milk, unless she will also render it quietly, and suffer you to take it away. The sooner a cow is milked dry after purchase, the better, since they are invariably *stocked* for sale; that is, their milk is suffered to remain perhaps two days, in order to distend the udder to the utmost, by way of recommendation: a cruel and absurd trick, by which these animals are tortured, and many of them annually ruined, from inflammation of the milk-vein, and *coring* of the distended parts.

As to a CHOICE of BREEDS for a private family, none in England, probably, combine so many advantages as the *Suffolk* dun cows. They excel both in quantity and quality of milk; they feed well after they become barren; they are small sized, and *polled* or hornless; the last a great convenience.

The horns of cows which butt and gore others, should be immediately *broad-tipped.* There is a breed of polled *Yorkshire* or *Holderness* cows, some of them of middling size, great milkers, and well adapted to the use of families, where a great quantity of milk is required, and where price is no object, and food in plenty. If richer milk and a comparison of the two famous breeds be desired, one of each may be selected; namely, the last mentioned, and the other of the Midland county, or long-horned species. Colour is so far no object, that neither *a good cow nor a good horse can be of a bad colour:* nevertheless, in an ornamental view, the *sheeted* and *pied* stock of the *Yorkshire short-horns* make a picturesque figure in the grounds. The *Alderney* cows yield rich milk upon less food than larger stock, but are seldom large milkers, and I believe, are particularly scanty of produce, and tender in the winter season. They are, besides, worth little or nothing as barreners, not only on account of their small size, but their inaptitude to take on fat, and the ordinary quality of their beef.

I regretted much to be informed several years since, in Norfolk, that from the difficulties of the times, the old and valuable breed of Suffolk dun cows had been suffered to degenerate, and that there was a danger that it might be even lost. These cows, together with the Alderney and Guernsey, or heifers and yearlings of those breeds, are procured and sent to customers by Mr. Fowler, Little Bushey Farm, near Stanmore, Middlesex, or others in that vicinity; or by dealers who attend Smithfield market.

It is pre-supposed that a dry and comfortable COW-HOUSE has been provided, containing a stall or two, and a *calf-pen*, and it is recommended in the *General Treatise on Cattle*, to confine the hinder legs of a cow whilst milking, as well as the head, the former of which is most securely effected by two stumps of wood fixed in the ground, to which the hinder legs may be strapped. They who aim at perfect security, as nearly as that may be obtained, will perhaps be induced to make it a rule, never to milk a cow with her head and legs at liberty; but most, as has always been the practice, will incline to put confidence in the quiet cow; many such, however, have I seen accidentally kick down a swimming pail of milk, and that may very probably happen when the article, being scarce, is of the most consequence—the unfortunate attendant, male or female, then marches into the house, with a grave step, a long face, an apology, and an empty pail.

The provision of FOOD for the COW must be looked upon as the prime concern in the dairy business, for such a constant daily draught upon the animal juices cannot be answered, but by aid of the most ample supply, even to satiety, of nutritious and succulent victuals; not that, according to the absurd notions of many persons, keep regulates and equalizes milking, be the breed whatever it may, since in some breeds the keep turns to milk, in others to beef; but because the truest and largest milker will very soon lose that precious faculty without proportionate, that is to say, high feeding. Keep short and meanly, and

your milk and butter produce will be in exact proportion, and the cow, when dry, emaciated and of little worth.

A farmer, some years since, in my neighbourhood, kept eighteen cows upon a common, and was often obliged to buy butter for his family. The common was inclosed, and the same person supplied his family amply with milk and butter from the produce of four cows well kept.

Great milkers seldom carry any flesh upon their bones, and are perhaps as seldom made fat, but they pay as they go, and never retire in our debt. The difficulties in cow-keeping are these—the expense of their food is considerable, more especially with respect to any which must be purchased, and, if the produce be inconsiderable, it may be a losing concern. You may be feeding a sparing milker into flesh, and if you stint her, or allow only ordinary food, you get neither flesh nor milk.

Amateurs in this line should procure the largest milkers, and, I had almost said, give them gold, could they eat it. In this case, it may be depended on, *milk is always of more value than the best cow-food*, which is the *jit;* and a cow, the natural tendency of which is to breed milk, will convert all nourishment, however dry and substantial, into that fluid; in fact, will require such solid kind of nourishment to support her strength, and stimulate her to procreation, in which otherwise, great milkers are very apt to be deficient, and frequently to miss their *bulling* at the proper season. But should corn be allowed, oats are the most proper; they should be ground or

bruised, and moistened with water, as the cow would otherwise swallow the oats whole, which would not only fail in giving nourishment, but might be productive of obstruction and disease. Fine pollard also, moistened or mashed, is a nourishing food; the milch cow, however, should always have exercise, and it is more especially necessary, when extraordinary and substantial food is allowed. Certain advice on cow-keeping, I observe, has been quoted in several publications. The author recommends cabbages throughout the winter, without any mention of hay, a diet at that season which must weaken the cow, reduce her quantity of milk, and not improbably bring on the scouring.

Another great object for our *crack* cow-master and lady of the snug rural mansion, is to have milk, cream and butter, in a generous abundance and high quality, throughout the winter, as well as the summer season; and of these, if they will take care enough to walk in our old and well-trodden paths, they shall not fail. The method is by contriving to have a fresh milker in the winter, with an ample store of the best provisions for the season. I will here just touch upon a point which ought to be of great interest to humanity. Should a family of the description here indicated, have milk either new or skimmed, to spare, the poor labourers in the vicinity will be glad and ready purchasers. It is a trouble my family most willingly incurred. To the great disgrace of the land, flowing with milk and honey, and eaten up with religious zeal, the wretched poor, to whose toil and exhaustion we owe all our luxuries

and comforts, have *never* been able to obtain milk for the sustenance of their offspring and their own most innocent enjoyment, even in the *dairy counties.*

SUMMER FEEDING: and, let it always be recollected, that *economy* is the leading feature in our plan. Natural grass is the first and best of all food for our domestic animals. Of the artificial grasses *lucern* stands first, and green tares, a very succulent and nutritious food for Milch Cows. The saving method of managing grass—and it will be found excellent economy where the proprietor may have only a small close or two—is to keep it constantly shut, and free from the tread of the cows, and to cut the grass as soon as of sufficient length and substance, and carry it to them: no more being cut at once than can be consumed in a day, the cutting being made in the morning. This to continue throughout the season, and as late in autumn as any growth can be obtained.

According to Mr. Curwen's experience, some years since, three acres of grass cut and carried, supplied thirty milch cows with two stone each, or twenty-eight pounds during two hundred days. He observes, that to have supplied them with two stone of hay each, during the same period, would have required seventy-five acres of land for its production; and to have grazed such a number of cows at liberty, that length of time, it is obvious, must have taken a very considerable number of acres. To enable the meadow to support this exhaustion from the scythe, it should be cleared at the end of every autumn, from all kinds of weeds and rubbish, and

fresh grass seeds, of the best kinds, cast upon the bare places. A coat of good manure should be then allowed, consisting of all that can be collected from the household, or procured elsewhere, mixed up and augmented with virgin earth. The garden will assist with its superfluity in feeding the cow, and lettuces, as a change of diet, will help to force the secretion of milk. Should the green food scour the cow, a small quantity of good hay must be allowed daily.

The few advocates for the ECONOMICAL mode of feeding cows, always direct them to be kept entirely in the house, both summer and winter, a practice to which I have strong objections, not only on the score of the animals' health and comfort, but that I have always experienced exercise abroad to increase the quantity of milk. Thus the cows may be turned upon the common waste, to remain or come home at their liberty, being fed to the full with cut grass, morning and evening, with the constant caution of allowing them shelter in the fly season. They may lie abroad during summer nights, in a well-littered yard, or secure waste, a sufficiency of cut grass being at their command. Pure water is of great consequence to the health and productiveness of the cow. If one beast *drive* the other, always at feeding times tie up the mistress.

WINTER-FEEDING. The chief dependence for cows is *rowen*, or after-math hay. This must be either grown at home or purchased. It is a piece of extravagance to allow a good milch cow dry straw, *because milk is worth more than hay;* but, should the

necessity exist of using straw, none other is fit than *oat* straw. ROWEN, or after-math, is generally supposed to force milk, but in poor pastures perhaps the first crop may be preferable; and I have lately been informed by a London cow-keeper, a good feeder, that he has discontinued giving rowen to his cows, finding the best hay most profitable. CARROTS are an excellent winter food, indeed the best of the root kind; MANGOLD or BEET also affords a plentiful supply; which last, however, must be dispensed with caution, cows having been *hoven* by it. If POTATOES be given to cows, they should be steamed or baked; those who venture to give them raw and mashed, should allow hay with them, as in the raw state and freely dispensed, they seldom fail to bring the scouring rot on cows. Bruised FURSE-TOPS are very good, and help to make capital winter butter. CABBAGES may be given moderately, but TURNIPS make thin milk and bad butter, in spite of all the nostrums which have been recommended as preventives. The miserable practice of giving OIL-CAKE to cows, insures greasy, unsubstantial, ill-scented butter, and has a similar effect on veal. When substantial food appears necessary, a daily moderate feed of oats broken, or fine pollard, moistened with water, is most proper.

In a late conversation with the above-mentioned cow-keeper, on the topics of hay and rowen, his opinion was, that, if rowen be very good, it will answer, as requiring a less quantity of greens than hay. Hay, indeed, is most substantial, but requires

a considerable quantity of green meat, to every other species of which he prefers the mangel-wurzel, assuring me that the milk of cows fed on that article will keep longer in the dog-days than that from any other food, namely, twenty-four hours, with due care and cleanliness. He ridiculed the Parisian nostrums for keeping milk sweet, demanding what could be the benefit of milk so preserved, at an expense of the loss of its flavour and good quality?

With the two cows in full milk, may be kept well, a BREEDING SOW, or two or three young PIGS; and should the proprietor desire a specimen of the finest milk-fed pork, he may feed a pig upon skimmed milk, with the addition of a very small quantity of barley or pea-meal, making it thoroughly fat in two months.

MILCH BEASTS should never be exposed by NIGHT to the inclemency of the winter season, which chills them, and dries up part of their milk, keeping them backward in all beneficial respects. At any rate, they should have a well-littered shed, in which they may repose in comfort, and with their *loins* dry—a matter of great consequence to their health.

The ANNUAL CONSUMPTION of food per cow, of grass and hay, if turned to grass, is from one acre to an acre and a half of hay in the summer, and from a ton to a ton and a half of hay in the winter. A cow may be allowed two pecks of carrots per day. The grass being cut and carried, will economize it full one third.

The ANNUAL PRODUCT of a good fair dairy cow:—during several months after calving, and either sum-

mer or winter, if duly fed and kept in the latter season, she will render an average of seven pounds of butter per week, from five to three gallons of milk per day. Afterwards, a weekly average of three or four pounds of butter from barely half the quantity of milk. It depends on the constitution of the cow, how nearly she may be milked to the time of her calving, some giving good milk until within a week or two of that period, others requiring to be dried eight or nine weeks previously.

I have heard of truly wonderful quantities of butter, made from the milk of a single cow in seven days; but I have never been fortunate enough to obtain one that would produce more than twelve pounds per week, although I have had a Yorkshire cow which milked seven gallons per day, yet never made five pounds of butter in one week. In 1790, residing at Sudbury Green, near Harrow, a servant whom I had from a farmer in the neighbourhood, informed me of a long-horned cow on that farm, from the milk of which, given in seven days, was weighed twenty-two pounds of butter: and in the year 1829, Mr. Joshua Salt, of Lounsley Green, near Chesterfield, had a short-horned cow that milked upwards of twenty-one quarts daily, from which three pounds of butter was churned, making twenty-one pounds weekly, of sixteen ounces to the pound: she calved in Chesterfield race week. On the average, three gallons of good milk will make one pound of butter.

The following improved method of obtaining clotted cream, has been discovered by George Carter, Esq. of Mottingham Lodge, near Eltham, Kent, who pre-

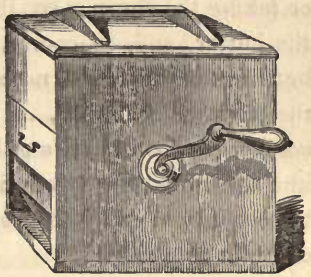
sented a memoir on the subject to the Society of Arts, in the spring of 1833.

A peculiar process of extracting cream from milk, by which a superior richness is produced in the cream, has long been known and practised in Devonshire: this produce of the dairies of that county being well known to every one by the name of "clotted" or "clouted cream." As there is no peculiarity in the milk from which this fluid is extracted, it has been frequently a matter of surprise that the process has not been adopted in other parts of the kingdom. A four-sided vessel is formed of zinc plates 12 inches long, 8 inches wide, and 6 inches deep, with a false bottom at one half the depth. The only communication with the lower compartment is by the lip, through which it may be filled or emptied. Having first placed at the bottom of the upper compartment a plate of perforated zinc, the area of which is equal to that of the false bottom, a gallon, (or any given quantity) of milk is poured (immediately when drawn from the cow) into it, and must remain there at rest for twelve hours; an equal quantity of boiling water must then be poured into the lower compartment through the lip; it is then permitted to stand twelve hours more, (*i. e.* twenty-four hours altogether), when the cream will be found perfect, and of such consistence that the whole may be lifted off by the finger and thumb. It is, however, more effectually removed by gently raising the plate of perforated zinc from the bottom by the ringed handles, by which means the whole of the cream is lifted off in a sheet, without re-mixing any part of it with the milk below. With this

apparatus I have instituted a series of experiments: and as a mean of twelve successive ones, I obtained the following results:—4 gallons of milk, treated as above, produced, in twenty-four hours, $4\frac{1}{2}$ pints of clotted cream, which after churning only fifteen minutes, gave 40 ounces of butter—4 gallons of milk treated in the common mode in earthenware pans, and standing forty-eight hours, produced, 4 pints of cream, which, after churning ninety minutes, gave 36 ounces of butter. The increase in the quantity of cream, therefore, is $12\frac{1}{2}$ per cent., and of butter upwards of 11 per cent. The experimental farmer will instantly perceive the advantages accruing from its adoption, and probably his attention to the subject may produce greater results.

The DAIRY must be the seat of the most exquisite and punctilious cleanliness in every part of its management. *Hence all sluts, snuff-takers, and daudles —away to the dust-hole and cinder-heap!*—a proper inscription to be placed in an advantageous light. The room must be airy, and both glazed and latticed, and floored with flag stones or broad brick. Well-glazed earthen pans are the best and most convenient receptacles for milk; lead is dangerous: the pans must be scalded perfectly clean, outside and in, besides being frequently boiled in a copper, well scrubbed with a brush, and rinced in plenty of clean water. Milk should be set immediately: if the weather be cold, put warm water at the bottom of the milk pan; if warm, cool the dishes previously with cold water. Skim off the cream, in summer every twelve, in winter every twenty-four hours.

Shift the cream into clean pans daily, in winter; twice a day, in summer; generally stirring it several times a day, with a clean wooden spatula. To make fine butter, cream should be churned within three days, in hot weather. In severe frosts, it is best to churn the *whole of the milk* daily, according to the practice in Scotland, a frozen cream always making rank butter. German stoves, burning charcoal, are useful in a dairy. The milker should never be suffered to enter the dairy in a DIRTY APRON, COVERED WITH HAIRS FROM THE COW-HOUSE: on this head, three reprimands, *the last accompanied with a discharge.*



An upright HAND-CHURN, or BARREL-CHURN, will equally answer the purpose. The quantity of milk being large, the latter will be most convenient. Baker of London has invented a box-churn with a spindle, which turns in the manner of a hand-organ, and being calculated for a small dairy of two or three cows, seems likely to supersede the old upright hand-churn. It may be placed on a dresser or table. Price, for one to make fourteen pounds of butter, 2*l.* 16*s.* It may be had of any size. It is said that "the Shakers, of Endfield, New Hants, U. S. America, have a still higher claim to ingenuity in the case, since they churn their butter by wind, attaching small sails to the churn, to be moved by a light breeze;" now whether this report be merely a

shake, vox et præterea nihil, a windy hoax, I leave to curious inquirers.

Much has been said and written on the difficulty of making butter *come;* it is, however, no less true that butter which comes too quickly is not likely to be too good, nor ought any to come indeed under nearly an hour's labour. The difficulty exists only in cold weather, when the churn may be placed near to the fire. In summer, cool the churn with cold water; in winter make it warm. Strain the cream through a fine sieve or linen cloth. It should be remembered, however, that the use of warm water, or taking the churn near the fire, always prejudices the butter, and, in course, should not be practised but in case of absolute necessity. First of all, when the butter is backward, *at the time it ought to come, not before,* put in half a gill of good vinegar mixed in a small quantity of warm milk. In summer heats, the cooler you churn the better, even to setting your churn in cold water.

The process being complete, and the butter MADE, strain off the butter-milk and put the butter into cold water, dividing it afterwards into small lumps upon a sloping board. Beat it well with wooden pats, *not sweaty hands,* until entirely free from the milk, and quite firm, cold water being at hand to throw over the board occasionally, and to wash the pats. Salt with fine beaten-salt as much as sufficient. The butter being made up according to the custom of the place, let the lumps be spread separately on a cloth, that they may not adhere. A highly esteemed Norfolk friend writes me, " butter is better

without washing." The affair is then left to the discretion of the practical reader.

In Lancashire, the milk is not skimmed for making butter; on the contrary, the whole produce of the cow is placed in mugs till it becomes sour, when it is churned; and thus is produced butter, according to the provincial opinion, at least equal, if not superior, to that of any other part of Great Britain. The butter milk thus produced is perhaps superior to skimmed milk, and forms a wholesome and nutritious beverage for the poorer classes of that populous county. Though this practice is ancient in Lancashire, and partially in the vicinity, the farmers of our chief dairy counties which supply the metropolis do not seem to approve, by their neglect of it. At any rate, it must occasion much additional labour.

The following *Recipe* for making butter without churning, I have never tried. It seems calculated for small quantities. Put the milk into a flat earthen dish, let it stand twelve hours, put it over a slow fire until scalded, not boiled: then let it stand twelve hours, take off the cream, and put it into a round earthen dish, stirring it round with a clean wooden spoon, and it will come to butter in about five or ten minutes. The cream cannot be kept too cool during the time you are stirring it, whence it is best to place the dish in cold water. As soon as the butter shall be so forward that you can take off a little butter milk, continue putting in cold water and washing out the milk. The cream may be kept, after scalding, three or four days, before making the butter, without injury.

"To put BUTTER down for KEEPING, let the salt be

perfectly fine; a layer of salt at the bottom of the firkin or jar; beat the butter down with a hard wooden rammer, not *hot fists*, and cover the top with salt." *The best colouring for butter is good keep for the cows.—New Farmer's Calendar.*

Description of the Dairy at Alnwick Castle, from the Edinburgh Quarterly Journal of Agriculture, March 1833, No. 20.

" Having a short time ago visited Alnwick Castle, the princely mansion of the duke of Northumberland, I was particularly struck with the beauty of the dairy.

" The cow-houses and dairy are beautifully situated, at some distance below the Castle, near the bank of the river Alne, which flows in a canal-like stream, ornamented with swans, through the extensive domain, amid fine shrubberies and delightful pleasure grounds. The cows are mostly of the Ayrshire breed, though there are some short horns and cross-bred cows. The object of the dairy being only to produce the best milk and butter, the cows are not selected for the purpose of improving the breed of the country, which, it is pleasing to observe, has perhaps already attained the highest degree of perfection of which it is capable. The cow-houses are commodious and airy. Each cow has a separate stall and manger, and every thing in regard to food and management is conducted with the greatest cleanliness and comfort to the animals. But the great object of attraction is the milk-house. It consists of an oblong building standing apart, surrounded with a deep veranda, through which no sunshine can penetrate. The floor of the veranda is laid with different coloured round pebbles brought from

the sea-shore. The light columns of wood which support its roof are festooned with clematis, honey-suckle, jasmine, passion flower, and other climbing plants. The single apartment in which the milk is kept, is about 30 feet in length, 20 feet in breadth, and 14 in height. It has two doors and four windows, the sills of the latter being about four feet above the floor. The floor is laid in an elegant tessellated form with bricks. The walls are covered with white glazed square Dutch tiles. The roof is of plaster with a handsome cornice. A thin white marble slab, as a broad shelving, runs round the whole chamber, as high as the sill of the windows; but the middle of the floor is occupied by a very large and thick white marble table, raised about two feet above the floor, independently of its own thickness, and leaving a commodious passage between it and the marble shelving. The dishes of new milk are set upon the centre slab of marble. The dishes themselves consist of the best Wedgwood ware. They are large, of a semi-ellipsoidal shape, having one extremity of the edge in the line of the conjugate axis, turned over in the shape of a lip, over which the milk is easily poured out of them. Large vases and elongated jars of coloured china, are placed as ornaments on the marble shelving round the walls.

" The shining pearly lustre of the tiles on the wall, the icy cold look of the white marble, the glossy splendour of the Wedgwood ware, and the brightness in the panes of the windows, all unite to impress the spectator with the conviction, that no other union of earthly materials could so well express the idea of

continued cold with unsoilable cleanliness and perfect dryness—the essential properties of a milk-house. The very air in the chamber in its coolness and transparency associated charmingly with the purity of the milk. The hand of taste was conspicuous in the arrangement of the materials. There was much that was of a white colour, and pure as it always was in ivory hue, as reflected from the wall, the marble, the dishes and the milk, these snowy hues were harmonized by the light of the sun passing through the greenness and freshness of the plants around the veranda; while the warm colours of the floor and of the rich patterns on the china jars, relieved the whole scene from monotony. In short, this apartment was the most delightful thing of the kind I ever saw. Its sweetness and beauty, derived from its fitness of purpose, are indescribable. It is not necessary here to enter into the dairy economy. Suffice it to say, that both the milk and butter from this dairy have acquired a high character, of which the public have at times opportunities of judging; for when the noble family are absent from Alnwick, the produce of the dairy is permitted to be sold in the public market, where it is bought up with avidity.

"There is a simple instrument used here for measuring the relative quantities of cream which the milk of different cows, at the different seasons of the year, affords. It consists of a stand of mahogany, supporting a number of glass tubes of equal length and diameter, graduated into degrees. New milk from different cows is poured in equal quantity into each tube, and the graduated scale marks the number

of degrees the thickness of the cream occupies in each tube.

"Signed J. N."

"With respect to the qualities and consumption of BUTTER generally, England and Holland are said to produce the best, and are certainly the largest makers and consumers. The preference is assigned in the Metropolis to the butters of Epping (in Essex), Cambridgeshire and Somersetshire. Gloucester, Oxfordshire, and the midland dairy counties produce good butter, as do those parts of every English county where good feed for cows is to be found. The Scotch and Welsh mountains produce the finest flavoured butter, though necessarily small in quantity. The dairy districts of Suffolk make large quantities of excellent butter, forming a considerable surplus for the supply of London, in half cwt. firkins. It is probably the best salt butter to be procured in the Metropolis. In the opinion of the present writer, who has tasted Dutch butter, both here and in Holland, it is a mistake to suppose 'it superior to that of any other country.' It has neither the flavour nor the substantial quality of English butter, and is often found in a very slovenly condition, abounding with hairs and other impurities. It however forms, perhaps, three-fourths of all the foreign butter imported into this country. The consumption of London is speculatively averaged at about one half pound per week for each individual, or after the rate of 26lbs. per year; thus again supposing the population to amount to 1,450,000 the total annual consumption would be 37,700,000lbs., or 16,830 tons. To this may be added 4000 tons of

butter required for victualling ships and other peculiar purposes, making the total consumption in round numbers 21,000 tons, or 47,040,000lbs. which at 10*d.* per lb. would be worth £1,960,000. The average produce per cow of the butter dairies was estimated by Mr. Marshal at 168lbs. per year; thus, supposing we are nearly right in the above estimates, about 280,000 cows will be required to produce an adequate supply of butter for the London market. But the annual consumption of butter in London has sometimes been estimated at 50,000 tons, which would require for its supply upwards of 666,000 cows. There is indeed an enormous discrepancy between the two accounts; but, considering the multitudinous increase of population, not only in the Metropolis, but throughout the whole country, of the two speculations, one seems rather inclined to lean towards the latter." Extracted from the Saturday Magazine, No. 9.

Previously to a few general remarks on the process of cheese-making, of which neither my wife, my prime minister, nor myself knew any thing practically, I will give you an anecdote or two, which occurred within our knowledge, whilst resident in Middlesex. A curious gentlewoman in the vicinity, native of Gloucestershire, who kept half a dozen cows, took it for granted, that the inferiority of Middlesex cheese subsisted merely in the defect of Gloucester intelligence and skill. In conformity, she procured a skilful cheese dairy woman from her own county, and under her own superintendence the experiment was made; the result, however, unfortunately was *Middlesex* cheese, even to the third season, which produced con-

viction and abandonment. I, however, not to be discouraged or distanced in the career of improvement, became inoculated, and communicated the *affection* to a near relative in Essex, who had meadows producing the most fragrant butter to be conceived. I sent her the Cheshire process, from which, personally superintending it, she manufactured indeed some of the richest of cheese, but about as equal to Cheshire, whether new or old, as home-made British is to foreign wine. It was fat, milky, insipid, and void of all strength or flavour.

My inquiry as to the cause of this failure has been answered by the assertion, that superior cheese-making depends on the peculiar and local nature of the herbage. I wait for further light. All things change; who then can say that, anon, the best Gloucestershire and Cheshire cheese may not be made in Middlesex, Essex, and Suffolk?

The process of CHEESE-MAKING is generally well understood in the regular cheese-making districts, which supply the rest of the country with such an admirable commodity, whether of the fancy or useful kinds; but it is not worth repetition elsewhere, being, as the case stands, merely an inducement to people to waste good milk. The *bang* of Suffolk and Norfolk is misapplied; it ought to be cut into latches for gates, a use to which I have formerly seen it applied in those counties.

THE CHEESE DAIRY. I have just now observed, that to make ordinary cheese is merely to waste good milk, which, however, must be understood as referring only to private families, since farmers who have

a number of servants to feed, can scarcely be expected to go to the price of Cheshire or Gloucester thin cheese, when they have a home-made substitute which does not cost them above one-third of the money; and the practice of making this ordinary commodity is universally known in the country. Cheese-making, however, is a more operose process than that of butter, requiring more attention and labour, and a greater number of utensils and conveniences; more particularly so in the regular cheese dairies, where the best cheese of commerce is manufactured. It is then kept distinct from the butter dairy, requiring several separate rooms, namely a PRESSING-ROOM, for making and pressing the cheese, which ought to join the milk-room, and be provided with a fire-place. A SETTING-ROOM, paved with stones, or smooth plaster, and laid on a descent, in order to carry off water, should also be furnished with a table or shelves, on which the cheeses may be deposited, and turned over occasionally, until ready to be removed. A CHEESE-ROOM, or loft, in which the cheeses are stored until ready for sale. The floor of this room is carpeted with coarse grass or rushes, which are supposed to have a beneficial effect on the new cheese. This loft, in some of the great dairies, is found over the cow-houses, not only for convenience sake, but on the opinion that the ascending warmth of temperature from the cattle has the effect of accelerating the ripening of the cheese. These lofts are more convenient when the walls are lined with shelves, and stages placed in the middle of the room. But the arrangement followed in North

Wilts, as Marshall describes it, seems superior in point of convenience. The cheese-room, with its shelves, is there placed immediately over the dairy, and the loft over the cheese-room, each floor having trap-doors through which the cheeses may be handed down.

The UTENSILS for cheese-making are, first a CHEESE-TUB, in which the curd is broken and prepared. These tubs, in course, vary in size proportional to the quantities of milk used, and are in form either round or oval. A CHEESE-KNIFE, of the spatula form, of wood, wrought to the thinnest possible edge, or with a wooden handle, four or five inches in length, and two or three iron blades twelve inches long, one inch broad near the handle, tapering down to the breadth of three quarters of an inch at the point, and shaped like an ivory paper-knife, the blades about one inch asunder, very thin, and ranged with their flat sides towards each other. These are used in Gloucestershire, and are to be preferred to the wooden knives. In some of the continental dairies, these knives are furnished with six or seven blades.

The CHEESE-BOARD is circular, of wood that will not warp, and planed smooth on both sides, about an inch or an inch and a half in thickness. Upon these boards, placed upon the shelves of the cheese-room, the fresh made cheeses are placed. The boards are of various sizes, and of a form to pass within the hoop-part of the vat, and to receive the weight or power of the press. The VAT, hoop-formed, must be strong, and its sides and bottom

perforated with holes, through which the whey may run off as the cheese is pressed. In every considerable cheese dairy there ought to be vats of various sizes in readiness, in order to adapt those used to the quantity of curd which the cheese-tub may contain, and to avoid the addition of overplus, which, kept from meal to meal, frequently spoils a whole cheese.

The CHEESE-PRESS, which forces the whey from the curd, should be skilfully constructed, and with sufficient power. This power may be either derived from a SCREW (at present most in use), a LEVER, or DEAD-WEIGHT; but, under whatever form, the power must be in proportion to the thickness of the cheese to be made. Should it not press level or have too much play, so as to incline, or become tottering, leaning to the one side or the other, and not fall perpendicularly upon the cheese-board, one side of the cheese will not only be thicker than the other, but one side may be thoroughly pressed, while the other is left soft and spongy. In the common dairies, where both butter and cheese are made in the same place, an exception should be observed with regard to the cheese-press, which should never be fixed where the milk and butter are kept, as they are liable to be affected by acid evaporations from the whey and curd. The CHEESE-TONGS, a kind of wooden frame, are occasionally placed on the tub, when the vat is upon it, and the whey draining from the curd.

Making fine cheeses, even from the best herbage and the richest milk, is a critical business, dependent

on a variety of incidental circumstances. The cows should ever be milked, during the summer season, very early in the morning, and at the latest convenience in the afternoon, in order to avoid the ill effects of the solar heat. Again, the cows should not be driven any considerable distance to be milked, by which the milk becomes heated in the udder; nor should the milk be carried any distance, as the motion and agitation occasioned by carriage has nearly the effect of churning it into butter, and rendering it unfit to be made into cheese. Milk, in this buttery state, will often be four or five hours before it will curdle, and here we have the cause of that defect on cheese, called *hoven*, or split. It is one of the greatest advantages in a cheese dairy, to have the cow pastures as near to home as possible; and, should the herbage be insufficient, the cows might still remain on the home pastures, their food from other parts of the farm being cut and carried to them. Dr. Anderson recommends milking the cows three times in the day, and, probably, more milk might be so obtained, but the additional labour is considerable, and the cows are too much disturbed by it.

The milk ought to be conveyed as quickly as possible to the dairy, and poured into different vessels for the purpose of cooling it with the least delay, more especially in summer, to avoid fermentation; and to this end it is the custom repeatedly to draw off the milk and pour it back again into the coolers. Leaden utensils, indeed, cool the milk more expeditiously than any other, but their danger, from the poisonous pro-

perties of the lead, combined with the *lactic* acid, are sufficiently known.

SETTING THE CURD AND PRESSING. The best cheese, of course, is made in *season*, from the beginning of May to Michaelmas, or in a favourable autumn to mid-October. In the regular dairies, particularly when the trade is encouraging, cheese is made throughout the year; but winter-made cheese is inferior, and besides requires a longer time to ripen for use. The cows, however, must be full fed during the winter, and upon the most nourishing and succulent food, at the head of which stand hay and carrots. Indeed, under all circumstances, milch cows should be equally full fed during winter as summer, if the view be to obtain the greatest possible profit from them. Where twenty-five cows are kept, a cheese of sixty pounds weight may be made daily, from May to the end of July.

The milk placed for setting the curd should be of the temperature of 85 to 90 degrees of heat; if from cows fed upon poor clays, it will require the highest temperature. Some dairymen heat the milk, which, being too often burnt at the bottom of the pot, it is generally held preferable to acquire the requisite warmth by the addition of boiling water, the quantity of which is regulated by the use of the thermometer. The admixture of water is said to accelerate the effect of the rennet in the coagulation of the milk.

RENNET. The article in common use, as rennet, or for the purpose of coagulating the milk, is the

maw or stomach of a calf which has been fed on milk only, and killed before digestion has been perfected. This should be perfectly sound and untainted. The maw of a house, or milk, not grass-fed lamb, may possibly answer the purpose. Take out the curd and wash the bag, after which, replace the curd with a considerable quantity of salt: put down the bag or bags in a jar, with a very strong brine of salt and tepid water, in the proportion of two quarts to each bag. After some days, the maws may be taken out, and with an additional quantity of salt, each stretched upon a bow, and hung up to dry for use. The usual application is as follows;—the night before cheese making, one or two inches of a maw is cut off and steeped in a few table-spoonfuls of warm water; on the following morning the liquor is strained off, and poured into the milk. One inch is generally held sufficient to curdle the milk of five cows. Some persons put rose-leaves, sweet-briar, cloves, and various aromatics into the rennet, for the purpose of imparting a fine flavour to the cheese. The rennet bag, again salted and dried, during a week or two, near the fire, may be of further use. Any acid will coagulate milk; and in the Dutch dairies, the *muriatic* acid, or spirit of salt, is used, but it imparts to the cheese a sharp and disagreeable saline flavour, which, however, is said to have the advantage of being destructive to mites. Various substitutes are in print for the rennet of the calf's maw, such as a decoction of the flowers of yellow-ladies'-bed-straw, or of spear-grass, the lesser spear wort; but I much doubt the efficacy of such simples: and in case of

necessity, and to prevent disappointment, it is best to have recourse at once to the muriatic acid, using it with great caution, and in the smallest efficient quantity.

ARTIFICIAL COLOURING. The native colour of cheese, skilfully made from rich new milk, will incline to a bright yellow, which, being the favourite colour, inclines the makers to heighten it artificially, a practice which also serves to impart to lean and ordinary cheese an appearance of richness. For this purpose, turmeric and marigold leaves were formerly used, but the Spanish *annotto* has long been the universal cheese-colouring. There are various ways of using it, but the most expeditious and equally effective mode is to dissolve a lump of *annotto*, of the size of a hazel-nut, in a pint of warm milk, the night before the cheese is made, and infuse it in the milk immediately on the rennet being put in.

COAGULATION, or curdling, will take place in from one to two hours, the milk having been set in its proper state; otherwise, as has been said, the curd may not come under more than double the time. Should the milk be in a heated and unfavourable state, the immediate addition of cold fresh spring water is the usual remedy. The quantity of water added must be regulated by experience, and the use of a thermometer. The milk must remain covered. So soon as the curd shall have been fully formed, the first operation is to cut it in all directions with the many-bladed knives, that the whey may rise through the incisions and the curd sink. This

cutting must be repeated, until the curd shall be reduced to the smallest and most even particles. The cheese tub is then again covered, and must remain until the curd has sunk to the bottom when the whey is laded off. In a short time the curd will settle and become solid, and may then be broken into the vat, where it again goes through the operation of cutting, and pressure is applied until it be perfectly drained of the whey. The utmost attention is required in this stage of the business, to lade off all particles of *slip-curd*, namely, such unsubstantial parts as have been loosened from the solid mass, and will be seen floating on the surface of the whey; such, if not removed, will dissolve in the cheese, and occasion *whey-springs*, which greatly reduce its worth, producing early unsoundness. The whey being of a *green* colour is the indication of a perfect make; but if white, it is a sign of imperfect coagulation, and that the cheese will be *sweet* and of inferior quality. The curd being fully consolidated is put into several separate vessels, and again broken with the hand, as small as possible; salt is then added and intimately mixed with it; and it is often the practice to over-salt poor and inferior cheese, in order to impart to it some semblance of strength and relish.

Pressing. Breaking and salting finished, a cloth is spread over the vat, which is pierced with holes, in bottom and sides, to facilitate the escape of every remaining drop of whey, and when the cheeses are large they may be pierced with iron skewers for the same purpose. A smooth round board is then laid

over the covered vat, which is usually filled to the height of one inch above the brim, lest the curd should shrink below its sides. The whole is then put into the press for two hours, when the cheese being withdrawn is put into a tub of scalding whey for an hour or two, to harden its coat, which is supposed to render it more fit to stand a sea voyage, but is apt to render cheese tough and horny coated, thence scalding is better omitted with such as is intended for home consumption. In small dairies having no press, the substitute is a broad hoop, open at top and bottom, perforated with holes, and placed upon a board also perforated. The hoop being filled with curd and another board placed upon it, a moderate but adequate weight may be laid thereon to press the cheese, which should be turned twice a day, until sufficiently firm. On removing the cheese from the vat, it should be wiped dry, and when cool wrapped in a clean dry linen cloth of a fine texture, and afterwards pressed during six or eight hours.

The cheeses being turned, are taken to the SALTING-ROOM, and rubbed on both sides with salt, and wrapped in a fresh dry cloth, finer than either of the preceding, which change in the degrees of fineness in the cloths is used to the end that the least possible impression may be made on the coats of the cheese. Pressing again, and for the last time, takes place for twelve or fourteen hours. Should any projecting edges remain, they are to be paired off smooth, and the cheeses being laid upon a dry board are turned daily. Cheese after being pressed and per-

fected, should be kept warm, until it have gone through its sweat, and become as dry and stiff as can be expected; since that state of firmness is not only forwarded by warmth, but also the ripeness and richness of the cheese.

The CHEESE-ROOM or LOFT, should be dry and well ventilated, but hard and soft cheeses should not be deposited together in the same room, since the moisture of the latter will be imparted to the hard cheeses, occasion them to soften, and their coats to become thick and ill coloured. On the contrary, when cheeses become too hard, whether from scalding or other cause, the practice is to heap five or six cheeses, one upon another in a warm room, which can be ventilated, and to turn them daily. Moist cheeses set on edge, are apt to warp, and get out of form. Cheese left to acquire age for market, require constant attention and turning for their due preservation. Our best British cheese is not in perfection until at least twelve months old, when its coat will have acquired the favourable blue tinge. Large cheeses, in some dairies, are smeared with fresh butter, twice or thrice a week, during several weeks, and kept moderately warm, no partial currents of air being admitted into the room, which may cause the cheese to crack. When cheese from imperfect making, becomes hoven, a remedy is attempted by pricking with skewers, or by rubbing a composition, known by the name of *cheese powder*, upon the cheese, at the second and third pressing. This powder is composed of armenian bole and nitre, and from the disagreeable flavour imparted by it, the remedy

is at least, full as bad as the disease. The best remedy is attention to turning and drying the cheese, the inferior flavour of which, from the original error, may perhaps not be so disagreeable as that certain to result from the pretended cure. In some dairies, the edges of the cheeses are rubbed hard with a cloth, and the floor cleaned and rubbed with fresh herbs.

Our chief British *fancy* cheeses the CHEDDER (Somersetshire, perhaps the richest and finest of cheese), STILTON, (Hunts), the PARMESAN, of England, being made of the richest materials. The COTTENHAM is a thicker kind of Stilton cream cheese, the superior flavour and richness of which are attributed to the fragrant and nourishing herbage of the vicinity. The BRICK-BAT cheese of Wilts, made of that form, where also fancy cheese is made in the forms of various animals, hares, rabbits, dolphins and others. DUNLOP (Ayrshire, N. B.) These last indeed are not to be ranked as fancy cheeses, but are of excellent quality, in size from twenty to sixty pounds weight.

Among the various CONTINENTAL cheeses, the *Parmesan* has ever borne the bell in this country. It is extremely dry, delicate and simple flavoured, and well merits the name of the ladies' cheese. It is made entirely of skimmed milk, and the curd is slightly coloured with saffron. Three or four years are required to bring it to perfection, though it is exported to all parts of Europe at six months old. It is said to derive its peculiar excellence from the cow pastures of the Duchy of *Parma* being watered

by the Po river; fed on which the cows not only give a superior quantity of milk, but of such quality, that the skimmed equals the pure milk of other countries.

SAGE CHEESE. In a sufficient quantity of milk, steep two parts sage, one part of marigold leaves and parsley. Two handfuls of the former and one of the two latter, are deemed enough to *green* a cheese of ten or a dozen pounds. After the infusion shall have been stirred up, on the following morning the coloured milk is strained off, and mixed with about a third of the quantity intended to be run or curded. The green and white parcels of milk are run separately, as the two curds must be kept apart until ready to be put into the vat, where they may be mixed either generally and evenly, or in an irregular and fanciful manner, as they are often seen.

The above rules for cheese making, which I have extended considerably beyond my first purpose, are chiefly extracted from the Board Surveys, and from Mr. Marshall's works, from which I apprehend the most authentic practical documents are to be obtained. As to common country cheese making in company with butter, under which the quality of the cheese is little considered, so that cheese it be, and the process is not over complex, or any extra conveniences in requisition, every ordinary dairy maid is fully *au fait*. The intelligent reader will, however, perceive that there is much labour, attention, and perseverance required in the manufacture of good cheese for public use, and that even on peculiar cheese soils, an equal degree of cleanliness and nicety is indispensable

in the cheese, as well as the butter dairy. The five principal cheese dairy districts of England are those of CHESHIRE, GLOUCESTERSHIRE, WILTS, DERBY, and WARWICKSHIRE.

Management of the Cow.

The AGE of neat cattle is determinable by the *teeth and horns.* They as well as sheep, are destitute of teeth in the upper jaw; but the mark of age, as in the horse, is to be found in the corner incisory teeth of the lower jaw. The first front teeth, or calves' teeth, remarkable for their whiteness, are shed at two years old, and replaced by others not so white. Every succeeding year, two other calves' teeth, next to the front, are also replaced; and at five years old, the incisory or cutting teeth being all renewed, are of good length, whitish and even, and the beast is full mouthed. From that period, as in the horse, the teeth are gradually filling up, until six years, when the mark is complete. The teeth afterwards become discoloured by age, sometimes long and irregular.

"The HORNS, at three years of age, are shed and replaced by others, which continue." This unaccountable absurdity ought to have been expunged and its cause explained, long since. I believe also that I have unreflectingly repeated it elsewhere, having implicitly adopted it on ancient authority. I did not reflect, at the moment, on the immense quantity of horns I must have annually witnessed in our pastures, had cattle and sheep periodically cast them. In

the deer indeed, the horns are deciduous, for which singularity the following reason was formerly assigned, "an impediment in the circulation—the horns being thence deprived of the juices by which they were nourished, fall off like the leaves of trees in the autumn. In about ten days or a fortnight after the first horns are shed the new ones appear, at first soft and hairy; they gradually grow hard, and the hair wears or is rubbed off by the deer." The indication of age from the horns are as follows—in the third year of the heifer, and in the fourth or fifth of the bull or ox's age, a ring appears encircling the base of the horn; but, if a heifer calve at three years old, the horn had acquired its mark at two years. Thence the period of gestation is rather indicated by the mark than the age. In the course of the year this ring moves, being pushed forward by another which succeeds, and the process continues to the end of the animal's life, its years being determinable by the number of these rings upon the horns, three years being reckoned for the first ring. It is common with cow-dealers to dress up the beast for sale, by shaving the horns, and thereby concealing the age. Indeed the mouth remains as an index, but who but an adept can adroitly lay hold of the animal's horns, and put its head in a posture proper for inspecting the teeth? Thence our advice to unprofessionals, never to purchase without the presence and assistance of a practical man.

The period of GESTATION in the cow is, according to an average, *two hundred and eighty-seven* days, or forty-one weeks, with a bull-calf; a cow-calf comes

a week sooner. (Dec. 29—Betty Cow to the Wyford bull to calve Oct. 5.—a bull calf Oct. 13—288 days or 41 weeks 1 day. Cattle Book 1790.) The cow's desire for the bull, every three weeks of the season, should be particularly attended to, so that her milk may be renewed. These animals are extremely liable to abortion, and should be kept from alarm, as much as possible, and out of the way of carrion and ill scents. They are ladies as subject to *hysteric* passion as their betters. They should not, particularly, be driven and harassed about by rude and heedless boys or girls.

The cow's time having been regularly noted down, it is better to watch and let her bring forth under shelter, in a roomy place, but absolutely necessary in the winter. She should never be tied up, when near calving, as it might occasion her to lose the calf, by being smothered, or otherwise. Give the cow WARM water, and a warm mash or two, with some sweet hay. The CLEANING or after-burden should almost immediately follow the calf, and should be forthwith removed. It may be retained from cold caught, in which case the cow must be kept warm, and fed as above, since she will be entirely ruined should it not come away. The calf should be permitted to suck the first milk or *beastings*, until the flow be abated, and no danger remain of inflammation. If the calf be weak, it should be held up to the teat. Some young cows have the udder greatly distended and inflamed two or three days previous to calving, and may be relieved by part of the milk being daily drawn away.

The HOURS of milking should be regular, and it is of the utmost consequence that the cow's udder be perfectly drained of milk to the very last dripping, the habit of leaving milk in the udder being in the end greatly injurious. The last milk, moreover, is always the richest, according to the remark of an experienced Cheshire dairyman, "each succeeding drop which a cow gives at a meal, excelling the preceding one in richness." A cow in full milk cannot be well drained under twenty minutes by the best hand. The udder should be kept well trimmed, and with it the teats should be perfectly clean before milking. The tail also should be free from dirt, and every risk avoided of fouling the milk. Upon the continent cows are curried, dressed, and clothed like horses: without going to that extreme, they may be rubbed with wisps and kept clean, that their appearance may be creditable to the family mansion.

A careless or unskilful mode of milking never fails to produce irritation and unsteadiness in the cow, with a thickening of the skin of the teats, whence proceed chaps and cracks exceedingly difficult to heal, from the necessity of constant handling. The following mode of performing the operation, which I have extracted from the Quarterly Journal of Agriculture, appears so rational and practical, that I earnestly recommend it to my readers concerned in the Dairy: "These effects may be, and are, almost entirely avoided by the more scientific plan of milking, adopted in other parts of the country, where, instead of drawing down, or stripping the teats between the

thumb and fingers, the dairy maid follows more closely the principles which instinct has taught the calf. She firsts takes a slight hold of the teat with her hand, by which she merely encircles it; then lifts her hand up, so as to press the body of the udder upwards, by which the milk escapes into the teat, or if (as is generally the case when some hours have elapsed between the milking times) the teat is full, she grasps the teat close to its origin, with her thumb and forefinger, so as to prevent the milk which is in the teat from escaping upwards; then, making the rest of the fingers to close from above downwards in succession, forces out what milk may be contained in the teat through the opening of it. The hand is again pressed up, and closed as before; and thus, by repeating the action, the udder is completely emptied without that coarse tugging and tearing of the teat, which is so apt to produce disease."

The following anecdote, which dates seven or eight years since, may serve to exemplify the nature of these animals, and to show the necessity of both their kind and careful treatment. Mrs. Bell, a widow in Annan, N. B., went to milk her cow, when another cow, which was grazing in the same meadow, ran at her, threw her down, and was in the act of goring her, when her own cow came running up, attacked the other with great fury, and succeeded not only in relieving, but in all probability saved the life of her mistress. This act in the cow may indeed be referred to mere instinctive impulse urging her to attack the other cow, but with equal reason to the motive of defending her mistress, since the instances

of attachment in animals to particular persons, and the demonstrations of it in acts of kindness and defence, are innumerable. The denial of a limited portion of the faculty styled reason to brutes, can only result from superficial thinking, from silly, overweening human prejudice, and defective observation. In fact, what is reason itself but discriminative instinct, common to both human and brute animals, with the latter certainly in a regulated, subordinate, and immensely inferior degree? Still they do discriminate and reason as certainly as man himself does.

In years past I had a fine tom cat, which we named Buonaparte, and which we suffered to retain that splendid name until his *godfather* became an apostate and a tyrant. A poor aged stray cat, deserted by some unfeeling wretches, appeared on the tilings of an outhouse, and a more starved, distressed, and miserable creature I never beheld; yet, having been probably so much frightened and harassed about, it would suffer no one to approach with relief. It attracted the attention of Buonaparte, who (he was surely intituled to the *personal)* approached it with compassion and kindness, not always shown to distress by the monopolists of reason. At his mealtime he carried to his unfortunate fellow-creature a share of his meat, in which he regularly persisted until it was observed, and the curious tidings were then brought to me. On the next occasion, I watched this pleasing trait of humanity in a brute from my window, and several times afterwards, I saw Buonaparte sitting upon his haunches, apparently with a consciousness of feeling and gratifica-

tion, whilst his poor protégé was feasting on his bounty! *And this I saw with mine own eyes, and it stands dated in my common-place book.* The old animal at length, judging of our benevolence by that of our cat, lost his fearful apprehension of us, and we took him in. But he was too far gone; and, after keeping him in comfort a day or two, as the next and greatest benefit I could confer upon him, I expedited him to his best home, the feline Elysium, in such way that he had no previous dread of the stroke which instantaneously destroyed all sensibility of pain. I had then before me the portrait of his benefactor Buonaparte, a most correct likeness, by the celebrated James Ward, and lately was sitting by my side one of his great-great-granddaughters, named Button, in her twentieth year, and nearly totally blind. She was ultimately lost by quitting the house on a sudden by night, and our long and painful search could obtain no tidings of her.

The CALF may be sold as soon as it has drawn off the beastings, or first milk, unless any *coring* or defect in the cow's udder or teats may render it desirable for the calf to suck a few days, in order that the action may clear off any obstructions, for which the *butting* of the calf's head is generally the best remedy. If intended to be FATTENED for the butcher, it must be kept in a pen, particularly dry and clean, suckled twice a day at regular hours, always have the first, which is the thinnest of the milk, and not be permitted to overcharge its stomach. Lumps of soft chalk are usually placed for the calf to lick, as an absorbent to neutralize those acidities engendered in

the stomach from feeding on milk. It seldom pays to fatten a calf beyond ten or twelve weeks.

WEANING AND REARING CALVES. A calf may be weaned by being gradually accustomed to suck milk in a pail through the fingers. Many are reared upon very little milk mixed with hay-tea, linseed, or other slops; fed on straw in the winter, and in summer upon the common. Such cannot be expected to turn to much account. The best cattle are reared from the teat, well wintered in good shelter, and full fed, until they attain their proper growth. Warmth and dry lodging are of the utmost consequence to the improvement of all young animals. Calves may, however, be reared to good proof, by being suffered to suck a very moderate quantity daily, the bulk of their food consisting of skimmed milk, thickened with oat or wheat meal; their winter food being carrots or Swedish turnips sliced, and oat-straw, with a small quantity of hay daily.

To such of my readers as desire to make the most of a single cow, I cannot do better than recommend the perusal of a small pamphlet, published formerly by the board of Agriculture, entitled "*Hints to Dairy Farmers*;" being an account of the management, food, and produce, of a single milch cow, kept by Mr. Cramp, keeper of the House of Correction at Lewes, in Sussex; an account which will prove to demonstration, and to the regret of every well-wisher to his country, that our dairy business, the product of which is so precious, and never equal to our consumption, is by no means managed in general upon a profitable or the most productive plan. Cutting and

carrying the green food for cows was recommended many years ago; and I experienced its full warranted utility, with the exception that my cows, when entirely kept in the house, fell off with their milk, whilst they increased in flesh: but recovered their milk again, when allowed a range. Mr. Cramp, who so well merited the honorary silver medal of the Board, allowed his cow the small range in his power, and cultivated her green food within the verge of the prison. He also seems to have added, by his experience, a new milky breed to our old stock. His cow was a Sussex bred one, and in all probability, and in his opinion, that famous breed has not hitherto had a high dairy character from mere disuse, and application solely, almost, to the purpose of rearing for beef.

Mr. Cramp's cow was seven years old, had produced five calves, and had been two years in his possession. She was fed in *summer* on clover, rye-grass, lucern, and carrots, three or four times a day. In *winter* with hay, bran, and grains, properly mixed, and often fed, particularly when milking. The manger kept clean, and no sour grains, rotten or mouldy vegetables given on any account, and the cow never suffered to overcharge her stomach, but to be well filled, and kept with a good healthy appetite. She was never tied up, and always had her choice to lie abroad, or in the house. Always when milked, dripped clean to the last drop. Being so well kept, she went dry only seventeen days before calving. The country is under great obligations to Mr. Cramp for such an example, by which it is hoped our dairymen and housewives will not fail to profit. It is a useful practice of Mr.

Cramp to give his cow a double-handful of *malt-dust*, mixed with a feed of grains and pollard, without exceeding that quantity of the malt-dust. Potatoes given to cows may be ground in a common apple-mill, or pounded in a trough: my experience, however, will not warrant me in allowing much commendation to that root, as food for any kind of live stock.

Quantities of Milk and Butter produced by Mr. Cramp's Cow, between April 1807, *and April* 1808.

From 6th to 20th April—milk 8 quarts per day, butter 6lbs. per week. From April 21st to June 1st —milk 22 quarts per day, butter 18lbs. per week. From June 2d to October 5th—milk 20 quarts per day, butter 16lbs. per week. From October 6th, to November 30th—milk 15 quarts per day, butter 13lbs. per week. From December 1st to February 8th, 1808—milk 13 quarts per day, butter 11lbs. per week. From February 9th to March 14th—milk 10 quarts per day, butter 8lbs. per week. From March 15th to April 4th—milk 7 quarts per day, butter 5lbs. per week,—dry for calving.

Sale of the Year's Produce and Expenses.

	£.	*s.*	*d.*
Sale of calf 14 days old—butter at 1*s.* 4*d.* —skim-milk at 1*d.* per quart—dung, valued at 3*l.*, in all	76	7	3
Total expenses, including 1*l.* 5*s.* for 10 Sacks Malt Combs, and a Farrier's Bill, 12*s.* 6*d.*	24	14	2
A year's net profit on a single cow . .	£51	13	1

I introduce the Harleian Dairy System, so styled by Mr. Harley in his publication, as a sequel to the practice of Mr. Cramp, and as a wholesale proof of the ill effects upon the cow of constant confinement within doors, an unfair practice, which nothing but necessity can warrant. Mr. Harley fully establishes the fact of these ruinous effects, by the acknowledgment that no cow can endure them beyond a twelvemonth; after which it is necessary to change the stock, their legs being swoln, their feet sore or foundered, and their flesh and milk greatly reduced. A pamphlet was published upwards of twenty years since, on this subject; but the practice has never been in repute, nor probably ever will be. I have already noted my experience of the falling off in the cow of her quantity of milk, in consequence of confinement. In the case of a deficient quantity of herbage for the number of cows, it is most profitable to cut it green for them, at the same time allowing them to remain abroad their due time, either upon the mown lands, or a common.

A person resident at Scawby, near Brigg, purchased a cow, for which he paid twelve guineas: he kept her twelve years, in which time she bore twelve calves; all of them were carefully reared, and sold at the times' prices, and as a remarkable circumstance, he sold her at last for the same price she at first cost him.

THE DISEASES OF COWS.

The chief of these are—*scouring*, the *hoose*, or *chronic cough*, *foul in the foot*, *loss of cud*, *yellows*,

black and red water, clue-bound, milk fever, withering.

With respect to the above, and other diseases to which cows and calves may be subject, the best advice in my power to give to the reader, is the PREVENTION of them,—which is, nine times out of ten, possible, and even easy, to those who possess the proper means for cattle-keeping; and in every view, the cheapest and only profitable plan. Further, as to medical remedies, I must again refer those who have occasion to employ them, to the "*General Treatise on Cattle, the Ox, the Sheep, and the Swine,*"—and more especially with regard to those fanciful and pretended remedies, with which the common cattle-books are stuffed; as cautionary against which, the late Mr. White, in his Farriery, says, the Treatise above referred to ought to be in every one's hands, who is interested in the subject.

Bad keep, and exposure to cold, wet, and dirt, will bring scouring upon the cow, but should such a one chance to be purchased, the reverse of all those, with dry substantial food, will cure her, if sound. CLUE-BOUND generally arises from the beast feeding, or rather starving upon dry straw, and it will be cured by nourishing and opening food. The FOUL in the FOOT may be occasioned by the animal being constantly kept in wet poachy grounds, or long dewy grass, during the autumnal or winter seasons; or from having been driven long journeys. It should be taken in time, when washing, cleanliness, paring, caustics, if necessary, and keeping the cow upon a dry and clean layer, are the chief and most effective remedies.

Neglected, the cow never recovers the perfect use of her feet, and both her milking and feeding are thereby reduced. In *withering*, or retention of the *cleaning*, for any length of time, I have never known any remedy; which shows the necessity of due care at the time of calving. Malt-mashes, or half malt and half fine pollard, warm, are excellent cordial medicines for cows. In general, these useful animals will rarely be troubled with disease, if constantly fed with a sufficiency of proper and nourishing food, and well sheltered during the winter season from wet and cold, and from the effects of those atmospheric vicissitudes, to which our climate is so peculiarly liable.

Some exceptions, however, may be made with respect to preternatural cases in CALVING, arising either from constitutional defects or accidents. But I do not profess, in this small treatise, to engage, except cursorily, with the extensive subject of veterinary medicine and surgery; with respect to the latter particularly, I refer the reader to Mr. Skellet's really practical work. In all difficult cases, more especially of parturition, immediate recourse should be had to an experienced practitioner, instead of trusting to the rude and unskilful efforts of servants, by which many a cow and calf have been lost.

The following curious experiment proved successful, some years ago. One of the fore-legs of a cow, the property of Mr. Little, of Herseford, Cornwall, being accidentally broken, and he being unwilling to kill the animal, caused the leg to be amputated immediately below the knee joint. The wound being perfectly healed, a pad and wooden leg were braced upon

the part, by which the cow was enabled to walk about, lie down and rise with facility.

In No. 17 of the Quarterly Journal of Agriculture, and in the Transactions of the Highland Society of Scotland, p. 87, there is a very curious and successful case of the amputation of the diseased udder of a cow, given by Mr. Dick, the eminent veterinary surgeon of Edinburgh. The operation, however, was performed by Mr. Andrew Bowie, veterinary surgeon of Howick—it succeeded, the wound healed rapidly, and she is now fit for the butcher. As human nature itself is occasionally found in the sad predicament of being obliged to undergo the most cruel and torturing operations, it may be demanded why should brutes claim an exemption? I shall only say, that notwithstanding the distinguished success of the above case, such good fortune must not always be relied upon, although the anxiety of a feeling mind, the unavoidable trouble, and ultimately the bill of costs indubitably may. Even granting success, the expense will in all probability exceed the future profit of the animal. With a cow then in such a perilous case I should prefer the first loss, have her killed, and her carcase turned into the little money it might bring. This, however, is not said with any view of derogating from the well-earned reputation of the eminent and able veterinary surgeons above cited, particularly of Mr. Dick, whom I have known by his writings and his practice during many years.

The disease, it seems, had arisen three weeks after the cow had been turned to grass, and, in the northern phrase, allowed to go *yeld*, that is to say, dismissed

from the dairy, and turned off to graze. Her udder had assumed a very hard state, and she was unable to rise. There is little doubt but that this induration of the udder had gradually arisen from imperfect milking; the milk not being perfectly drained off, thence obstructions gradually increasing in the ducts, until, at length, the disease was formed. This is a common cause of injury to the udders of cows, as is also that villanous and cruel cow-jobbing trick of *stocking* cows on sale—in the northern phrase, *hefting* them: the animals are left several days unmilked, in order to distend the udder to its utmost capacity, by way of attracting the attention of the buyer. I had formerly several cases of violent inflammation in the udder, of young cows particularly, from this cause. I would seriously and earnestly recommend to large and influential purchasers of cows, to join and put an end to this torturing and injurious practice, absolutely useless and ridiculous, in any point of view whatever. It is an actual imputation on the common sense of purchasers. Could I possibly spare room, I should with pleasure transcribe the whole of Mr. Dick's excellent letter: circumstanced as I am, I can only recommend it seriously to the attention of all who are concerned in cows and dairying.

Imported into Liverpool from Ireland, during the year 1829, (the number short by five weeks being omitted,) Cows, 45,541; Calves, 10,358.—*Liverpool Mercury.*

According to the best information to be obtained, there are annually consumed in Paris 75,000 oxen, 8000 cows, 76,000 calves, 80,000 pigs, and 370,000

sheep. The annual sale of poultry and game amounts to 8,000,000 francs; of fish, to 4,000,000; oysters, 1,000,000; and of fresh-water fish, to 600,000 francs.

INVENTIONS. (British Farmer's Magazine, Feb. 1832.) By an official document laid before the Congress of the U. S. America, it appears that no less than six thousand inventions have been secured by patent since the establishment of the patent office in 1793. The plough has been made to undergo one hundred and twenty-four improvements. One hundred and nineteen threshing machines have been invented. That great problem, the extraction of butter from cream, without fatigue to the operator, has been solved in eighty ways, by the inventors of eighty different churns. Four new machines have also been invented for paring apples.

SECTION XVIII.

Bees.

PREVIOUSLY to the year 1787, although we had accidentally caught a swarm of bees, we had paid little attention to the culture of honey, our domestic occasions for that article being very limited: and in that year, whether or not the quantity collected or imported was so considerable or the demand so reduced, the first and pure honey was sold in Hants, Essex, and various parts of the country, at and even under the price of two-pence per pound. The middle district of the county of Essex, in the vicinity of Bocking and Braintree, produces probably some of the best of English honey. It is usually collected from the cottagers, by higglers in their carts, the price in 1824 about sixpence per pound, that of wax about eighteen or twenty pence. Persons of property in a parish, desirous of promoting the culture of the bee among the labourers, might very safely purchase the produce of their hives at a somewhat higher price, and render the bee husbandry more encouraging.

Such a PRICE as the first above quoted, affording the prospect of loss, in every view, instead of that of due remuneration, could not fail to damp the spirit of apiarian culture on the ground of profit; and perhaps we are to look to this fact generally, as

the radical cause of the neglect of bees in Britain and Ireland, of which our enthusiastic apiarians have been in the constant habit of complaining. The importation of the foreign article cannot properly be adduced as an impediment or rival to the growth of honey in this country, on the consideration of its constant superior price, since our native produce, if not generally preferred, is fully equal in quality to all purposes, domestic or medicinal, and since it is obvious that the home culture, if adequately pursued, would soon not only prove sufficient for the national use, but would require the aid of an export trade. So far as I have considered the subject, in the course of a great number of years, such must be the invariable result; thence there can be no temptation to push the bee culture in England to any great extent beyond its accustomed limits.

An export trade in honey seems altogether out of question, even absurd. The southern nations would always excel us in the fine, if not the solid quality of the commodity: and all nations in cheapness of production. In truth, the culture of this article to any commercial extent, is the object rather of countries abounding in forests and waste lands, the labouring classes of which are glad of any occupation to engage their spare time, and to make an addition to their scanty earnings; which is as much as to say, such a concern can never interest, in any material or extensive degree, the attention of a great agricultural and manufacturing nation.

On this side of the QUESTION also, it has been urged that—"if the country were stocked with bees, to the utmost possible extent, it might be question-

able, whether the diminution in produce of beef, mutton, and wool, hides and tallow, from the impoverishment of the pasture, would not more than compensate the return in value, from the increased production of honey and wax." These insects were formerly held, by their depredations on the *pollen* and *farina*, to detract from the fragrance and beauty of flowers, and to hasten their decay; and by their operations on the blossoms of fruit-trees, depriving them of their nectarine juices, to occasion the withering and premature decay of much of the fruit. This ancient opinion receives some countenance from the fact asserted by our modern gardeners, that if the flowers of any of the radish or *brassica* tribe, have been much laid upon by bees, the purity of the seed cannot be warranted. In addition, the mischievous and revengeful disposition of these insects is urged as extremely dangerous both to human and brute creatures, insomuch that some farmers have declared, they might as well be surrounded by nests of hornets, as by multiplied stocks of bees. Accidents of animals stung to death by these furious and vindictive insects have ever been of periodical occurrence. Lately a female child had a fortunate escape. Its face, head, and breast were covered with the insects, swelled and inflamed to an enormous size. The case was perilous, but by the child being immediately found, the bees brushed off her and proper remedies applied, she soon recovered. The juice of onions first, and vinegar afterwards, are said to be specific: also the application of the extract of lead, formerly called Goulard's extract, with a piece of linen.

On the other side of the question it has been urged,

that the bee never deranges the flowers which it visits, or obstructs generation by injuring the little embryos; and that it is even somewhat questionable, whether those visits are not of great use in promoting the fructification of flowers and blossoms, by conveying the dust or seed of the male flowers into the receptacle of the female; and whether or not the sole use of the honey of plants may be merely to tempt insects.

Much of the above, on one side or the other, seems, at present, to consist of questionable speculation. One point, however, may be looked upon as established; bees have never yet been kept in this country to such an extent as to produce any palpable injury either to our fields or our gardens: and as it is not very probable that they ever will be, the ascertainment of the fact in question is of the less consequence. Our object is to caution the reader on the enthusiasm, however well intended, of the professed and too sanguine apiarian, and to point out the true and rational grounds on which the business of the hive may be pursued in this country, together with the best instructions in our power to furnish, for the attainment of success.

To come at once to the point: having the leading argument above in view, it does not appear that to keep bees with the expectation of commercial profit, can possibly answer the ends of any but our labouring cottagers. Were the counties of Essex, Hants, or Surrey, to enter into this branch of rural economy, to the extent recommended by those writers who, astride upon their hobby-horses, urge them forward with such eagerness and impetuosity, but for one

successful season only, the price of honey and wax, during the succeeding, would be reduced almost to nothing, and the production, however intrinsically valuable, worth little else, might be bestowed as manure upon the land. It must yet be allowed, that a considerable sum is annually expended in the import of foreign honey; to the extent, it was averred, a few years since, of 240,000*l.*

The rational MOTIVES for keeping these interesting insects in England are, the gratification of natural and scientific curiosity, the national supply of their productions, and, in particular, to form a necessary and ornamental article in the rounding or completing the plan of a country-house, as sketched in our preface. The culture of the bee has been known and practised from almost the earliest ages of which we have any record; and its wonderful instinct, subtilty of contrivance, and proverbial industry, have never failed to attract the notice, and engage the investigation, of some of the most learned and enlightened men of every age. Indeed, the total neglect of the bee must appear, to the eye of reason and of science, as a barbarism and shame to any age or nation. The estimation in which this insect was held in ancient times, will be evident from the splendid character bestowed upon it by men most celebrated for their genius and learning;—Virgil styles the bee a ray of the divinity,—Plutarch calls it the magazine of virtues,—and Quintilian avers that the bee is the greatest of geometricians. The effects of instinct in the bee form one of nature's most marvellous exhibitions: and its governing attribute is, in this

respect, superior even to the boasted reason of man, enabling it to construct its habitations and needful offices, in the full exactitude of pure mathematics, independently of the aid of either rule, line, or compass. Our Shakspeare, the prince of poets, and the industrious bee for collecting all the sweets of poesy, has beautifully, and with true practical correctness, described the bee of nature.

It is to be observed that the principal bee, of which every community of these insects has only one, was formerly styled the king; which modern discoveries proving to be a female, have metamorphosed into a QUEEN. The bee is one of those creatures destined by nature to congregate, like the human race, and live in communities under the guidance of an inferior kind of reason, denominated instinct. Thus qualified, the bee wears out its extremely limited term of existence in unremitting labour, not for its own individual, but for the common benefit. According to the continued observations of studious and curious apiarians, these insects are actuated by those leading passions which sway the human breast, and endowed with that degree of apprehension and discrimination, which enables them to know the persons of their attendants. The simple consideration of a close fellow-feeling, in all respects, of suffering and enjoyment, between brute animals and man, should teach him the great and bounden duty of compassion and of mercy towards them.

The BEE, or honey-fly, according to naturalists, is of the fourth order of *Insects*, and has four wings;

and the community, or hive, contains three kinds, namely, the queen, or mother-bee, the drone, and the working-bee.

In examining the STRUCTURE of the common working-bee, says Buffon, the first remarkable part that offers is the trunk *(proboscis)* which serves to extract the honey from flowers. It is not formed like that of other flies, in the manner of a tube, through which the fluid is to be sucked up; but like a besom to sweep, or tongue to lick it up. The insect is also furnished with teeth, enabling it to work upon the materials collected, the *pollen* and *farina* of flowers, from an elaboration of which in the stomach of the bee, are to be derived both the honey and wax. In the thighs of the hinder legs are found two cavities, fringed with hair, and into these, as into a basket, the bee deposits the pellets it has collected. Thus employed, it flies from flower to flower, increasing its stores, until the pellet or ball upon each thigh acquires the size of a grain of pepper; when having obtained a sufficient load, it returns homewards, making the best way to the hive.

The BELLY of the bee is divided into six rings, which, by slipping one over the other, shorten the dimensions of the body. Pliny held that the body of the bee is furnished with pores, through which the animal breathes, and to this opinion, Lisle, the agricultural writer, has assented. The contents of the insect's belly, besides the common intestines, are the honey-bag, the venom-bag, and the sting. The honey-bag is transparent as crystal, containing the

honey which has been collected: the greater part of which is deposited in the hive, being passed into the cells of the honey-combs, whilst the remainder serves for the insect's nourishment, as, during the summer or labouring season, it never touches the store laid by for winter.

The STING, which serves to defend this little animal from its enemies, is composed of three parts; the sheath and two darts, which are extremely small and penetrating. These darts have several small points, or barbs, like those of a fish-hook, which render the sting more painful, the darts rankling in the wound. Still, however, the infliction from such an instrument would be very slight, had not the bee power to poison the wound. The sheath, which has a sharp point, makes the first impression, the darts act next, after which the venomous fluid is infused. The sheath sometimes urged, perhaps by the degree of excitement in the insect, sticks so fast in the wound, that it is left behind, and causes more permanent inflammation. The bee, in consequence, soon after dies, from an eruption of the intestines.

It might, on first consideration, appear well for mankind, if the bee had not the power of inflicting such wounds, but on farther reflection it will be found, that the little animal would have too many rivals in sharing the profits of its labours. Numerous other animals, fond of honey, and of obtaining it at free cost, would intrude upon the sweets of the hive, without armed guardians for its protection. The venom of the insects appears to be an original material in their composition, imparted to them by nature, for

the purposes of defence, or revenge, and not formed like honey, the ingredients of which are collected from without.

It has been observed, that bees are endowed with the faculty of knowing the persons familiar to them, which, indeed, seems sufficiently obvious from their power of distinguishing, individually, their own kind, and their friends from their enemies. Nature has placed the bees not only under one of the most regular of commonwealths, with a queen at their head, but instructed them so thoroughly in the division of labour, and each of them in every separate branch of it, that each one indiscriminately engages in that part which may, at the moment, require his industry. Bees are weather-wise, and generally remain close at home, on their sense of the approach of unfavourable weather. Like all armed insects, they are passionate, revengeful, and active, but will scarcely ever attack keepers who have been acknowledged by them, and who take care constantly to approach them quietly, and without roughness or cause of agitation. It appears, however, to be an ascertained fact, that there are persons who, probably from the peculiar scent of their perspiration, are either pleasing and attractive, or disgusting to the olfactory nerves of bees. Thence it has occasionally happened, that a swarm of bees shall have alighted upon the human head and face, and the patient being of the favoured class, not the slightest injury has been sustained; on the contrary, it has often occurred, that persons have been stung dangerously, and as it would seem revengefully, by these insects. It is perhaps the same with respect to strangers visiting an apiary.

The following almost miraculous story appeared in a late provincial newspaper. "That bees may be tamed, so as not to hurt persons to whom they are accustomed, I have by many instances heard exemplified, but most remarkably by the following account. A gentleman residing at Bury St. Edmonds (whose name surely ought to have been given) could do with impunity any thing he liked with his bees; he knew every one of them, and could distinguish each from its fellow, as a shepherd is said to individualize his sheep by the physiognomy of each; and if he wanted to show a particular bee to a friend, he would have the hive to which it belonged turned out into a cloth, roll the insects about with his hands, like so many peas, and, unharmed, select from them the one required! This fact he has often been seen to perform." I must own, I should decline being a spectator of such a fact. The unaccountable fact, however, as above stated, known from antiquity, is indisputable, that bees will sting, even to death, some persons—the majority—whilst they select their favourites, whom they leave unhurt. My late wife belonged to this favoured class, having had, in approaching the hives, her head and face covered with bees, without receiving the slightest injury or inconvenience, beyond the tickling of the insects; but she offered no opposition, standing perfectly still until her dangerous visitors took their leave, which occurred in less than five minutes. I am not aware whether these furious infernals have the same election in the case of brute animals, but in all probability not, since these have not power to reflect on the necessity of remaining still under the perilous visitation.

There are VARIETIES of the bee, more, I think, in other countries than in this, where we pay little attention to that matter. To the queen, or mother of the whole community, however, it is necessary for the bee-master to give the strictest attention, as, without a queen, it is useless to possess a hive, since neither can the generation of fresh swarms proceed, nor will those which may be present labour, but either emigrate, or languish and die. It being then so necessary to have the distinguishing form and features of a queen familiarly in the eye, I shall give a decription of her, and, for correctness' sake, from Mr. Huish, a most able, practical, and comprehensive writer on the subject.

The form of the QUEEN is wholly different from that of other bees. Like the drones, she neither has nor needs the triangular store cavities in her hinder thighs: her teeth are smaller than those of the working bee, but larger than those of the drone, and she has no bunches of hair or bristle near her feet; she is longer in her body, and more tapering than the drone. Her belly is of a golden colour, and the upper part of her is of a brighter hue than that of the common bee. But the most unerring rule to judge of the queen bee is from the shortness of her wings, which extend only to the third ring of her body, whilst those of the working bees, and more particularly those of the drones, cover almost their whole length. Thus she flies with greater difficulty than the working bees; however, it is mere accident, if in the course of her life she should have any occasion for her wings. She is

armed with a crooked sting, which she seldom or never uses, which may be a provident care of nature, perhaps, for the protection of a personage of so great importance, from the fatality consequent upon that act.

The GENERATION of the bee and larger insects, contrary to that of the common fly, appears to be after the rule of fishes. According to the prevailing opinion, there is no sexual congress among bees, nor is the possibility conceivable, for obvious reasons. The QUEEN lays the eggs, which are afterwards fecundated by the drones. Her body contains an *ovarium* or egg-bag, of which certain insecto-anatomists have actually or fancifully discovered two, terminating in a common channel, which two are filled during the breeding season. Her fruitfulness is almost beyond conception, and she continues to deposit eggs, as long as a cell remains vacant for them. The title of queen is a mere fiction; she would be with far more propriety styled mother of the bees, as she really is; for, although her indispensable existence obtain for her a kind of royal state, she possesses not the smallest power above any other individual of the hive, or any kind of direction in its concerns. As a proof of the veneration of these communities for royalty, should more than one queen remain after the swarms have gone off, the supernumeraries are infallibly and loyally massacred. The young queens never lay eggs in the parent hive, but depart with the swarms, in order to find their place in a new establishment.

The queen is hatched in a cell of a totally different construction to that of any other bee. Her

cell is perpendicular. Those both of the drones and working bees are horizontal. The cell of the drone is of an irregular form, that of the working or common bee a perfect hexagon. On the side of the middle combs the cell is constructed, which is destined to receive the egg, of which a young queen is to be born. It has been discovered by the curious, that nature imparts the wonderful faculty to the queen, of foreknowing the kind of egg she is about to lay, and of choosing the particular cell in which it ought to be placed. A queen is known to lay four or five hundred eggs in a day. Such are the discoveries or opinions of practical apiarians.

Should the number of labouring bees be insufficient for the purpose of constructing the necessary cells, the queen will most probably forsake the hive, however well supplied with provision, and will be most ready to take this step in fine weather. All, or part of the stock will follow, assisting her, it is averred, when wearied, from being unaccustomed to flight, by bearing her up with their legs and wings. The old remedy to prevent this desertion was, to place empty combs in the hive, which does not always succeed, from the disgust taken by the queen. The preferable method is supposed to be, when there is a hive at hand, the colony of which has died during the season, to place over it the hive about to be deserted. The eggs left in the borrowed hive will thus be hatched, and a colony raised in sufficient numbers. The accidental death of the queen, or departure, will occasion the bees to forsake their hives. Some years since, according to report, the Rev. Dr. Dunbar, by

a series of experiments in Scotland, ascertained, that when a queen bee is wanting in a hive, she may be produced from the egg of a working bee. In one experiment, the queen being removed, the bees set about constructing royal cells, and placing common *larvæ* in them: in seven days two queens were formed. One of these killed the other, and though, while in a virgin state, the surviving queen was treated by the bees with no distinction whatever, she no sooner began to lay, than she became the object of constant solicitude and respect by her admiring subjects, who watched, fed, and waited upon her.

The DRONE, or male bee, is the largest; full at the extremity or tail, which the wings cover, excepting a small angle which has a blackish appearance. Beneath are two small protuberances, which are the supposed indications of the masculine gender. The drone, as every one knows, is left by nature unarmed, the organs of generation in him being found in the place of the sting in the working bee. The *antennæ* and *probosces* of the drones are shorter than those of the labouring bees, and their teeth smaller; nor have they those cavities on the thighs, which distinguish the latter, their sole destined employment being the propagation of their kind, for which they are furnished with food from the common stock, towards the collection of which they never give, nor are expected to give, any assistance. The fate of the drones is a singular proof of the instinctive predominance of the interested motive in animal nature, which may be traced equally to human nature in the savage state, and before the asperities of that state

are mollified and worn away by the expansion and culture of the reasoning faculty. The drones are hatched at the beginning of the season, and having completed the duty of fecundating the eggs, they are all to a unit, towards the end of the same season, destroyed by their brethren, the working bees, and their carcases dragged from the hive.

The MODE in which this execution is perpetrated by the bees, is said to be by driving the victims from their combs and weakening them by starvation, after which they are finished by being bitten beneath the roots of the wings. This carnage continues during three or four days, and is seen in front of the hives. Several bees at once seize upon a drone; he makes no resistance, and they do not quit him until they have fulfilled nature's mission. The assassins should be assisted in their work, and a wooden spatula will serve the purpose. The life of the drone thus extends, upon the average, but from April to August, or September. The drone is particularly distinguished by the humming noise which he makes in his flight. The number of them in a hive, proportional to its size and to the number of working bees, is from four to five hundred to upwards of a thousand. Key says, in his Bee Master's Farewell, that a good swarm of bees ought to consist of a peck and a half, or about thirty thousand in number. Many jokes have passed on the idea of measuring bees by the peck; nor does the correct tale of them by the thousand appear a much more feasible undertaking.

The *common mule*, or LABOURING BEE, is smaller than the drone, and its most obvious distinction is its

complete snug covering, to nearly the extremity of the tail, by its wings. Having no concern in generation, this bee is of no sex, neither male nor female. Its province is solely that of labour, of which it performs every species which is needful for the community. Gathering in the harvest from the flowers, constructing and filling the combs, feeding the young, murdering the useless, and preserving the hive in that state of cleanliness and neatness, in which these industrious and astute insects take so great delight. This bee is furnished with natural implements, extensive and strong, in proportion to the labour which it has to perform. It has two hard teeth or jaws, which enable it to collect the wax, knead it, and construct the cells: also to remove any substance of which it is desirable to be ridded. The *proboscis*, of a shining chesnut hue, exclusive of its sweeping property, by which the farina of the blossom is attracted, is likewise furnished with a channel, through which, by a muscular power in the organ, honey and liquids are drawn into the gullet. It is supposed, that the collection of honey and farina by the bee is a distinct operation, and that it never enters the hive laden with both.

For the following rules and cautions, furnished by a judicious practical apiarian, and friend to the work, the author holds himself much obliged.

"It is not to be expected that any one can possess an intuitive knowledge of the management of an apiary, and especially of some points of the utmost consequence to the prosperity of the hives. A person is generally, in a certain degree, a judge of the

goodness or badness of the article which he wishes to purchase; but how few are there, who when they establish an apiary, are able from their own experience, to decide on the badness or excellence of a hive; and thus, perhaps, at the very outset of their undertaking, a failure ensues, and the pursuit is relinquished, arising from a groundless idea of the difficulties which attend its prosecution.

"The usual methods of establishing an apiary are, either by the purchase of stocks or of swarms—or, in some instances, by the settling of a vagabondizing swarm in your garden, which, by the country housewives, is always considered as a real God-send;—remembering to forget, that they have as much legal right to the swarm, as they have to the cow or pig which may have strayed into their premises. In the purchase of stocks, the following essential points should be attended to, without a knowledge of which, the young apiarian will find himself deceived, at the very moment when his expectations of ultimate success are raised to the highest pitch. It is with a beehive as with a wife, never take one on the recommendation of another person, but be your own judge of its merits and defects. If it be your intention to purchase a stock, repair to the garden in which it stands, about the middle of the day, and, placing yourself before it, pay particular attention to the actions of the bees. If you observe them crowding in and out of the hive, and a considerable number of them having little yellow pellets or balls on their hinder legs, a very favourable opinion may be formed of the health and condition of the interior, and

especially of the prolific state of the queen. If the examination take place previously to the swarming season, pay particular attention to the number of drones; this is an infallible criterion of the populousness of the hive, and the purchaser may then confidently look forward to the possession of the usual swarms.

"If, on the other hand, the examination take place in the autumn, the previous massacre of the drones must be ascertained; the omission of this act, on the part of the bees, is a certain sign of some radical defect, most probably on the part of the queen, and the prospect of the bees surviving the winter becomes thereby highly problematical. If the bees appear irascible and bold in their attacks on their enemies, particularly the wasp, it is a good sign of their condition; if on their return from the fields their bodies appear cylindrical, it is certain proof that the bees are busy in the collection of honey, and, consequently, a good estimate may be formed of the interior richness of the hive. In regard to the exterior of the hive, on no account select one which is old and decayed, as such hives are always infested with vermin. No prudent apiarian will ever put a swarm into an old hive, and in this respect it must be admitted, that in a great degree the most culpable carelessness exists on the part of the cottagers, who, perhaps from a principle of false economy, put their swarms into old and rotten hives, rather than be at the expense of purchasing new ones. A new hive to every swarm ought to be the leading principle of every keeper

of bees, and it is to the want of due attention to this point, that so many failures occur in the management of an apiary.

"The examination of the interior of the hive is attended with greater difficulty to the young apiarian, and yet this examination is indispensable to the knowledge of the goodness or badness of a hive. The original colour of the combs is white, and it follows, therefore, that in proportion to the difference of shade which the combs present, so is the age of the hive. In old hives the colour of the combs approaches to an absolute black, and therefore all idea of its purchase should be rejected. A golden colour may be considered as the medium, and if the side-combs appear filled with honey, which may be known by the cells being sealed, little risk can be run in the purchase of the hive. A number of queen cells is an infallible criterion of an old hive, and although a swarm may be obtained from it the succeeding year, yet it would not be advisable to purchase it.

"In regard to the purchase of swarms, it is to be regretted, that a system of deception is often practised by the cunning cottager, which, as it is very difficult of detection, except by the experienced apiarian, is generally attended with success. It is the general practice in the purchase of swarms, when they are bespoke, to send the hives into which the swarms are to be put, as the intended purchaser may entertain a fancy to a hive of a particular shape, and the removal of the bees from one hive to another is an operation too difficult to be

undertaken by the young apiarian. At the regular time, the cottager informs his dupe that the swarm is safely housed, and it is taken away under the supposition that it is a first swarm; for which, perhaps, the price of a guinea has been paid. The truth, however, will soon disclose itself, that the cottager has retained the first swarm to himself, sending the second swarm to the ignorant purchaser; and the question now presents itself, how is this fraud to be discovered?—the solution is immediately at hand. In the formation of the combs, there is one invariable principle peculiar to first and second swarms, which is, that a first swarm always commences the erection of their combs in the middle of the hive; a second swarm always begins their combs at the side. Let, therefore, the purchaser, previously to the removal of the swarm, gently lift up the hive, and so arrive at the position of the combs; if the foundation commences at the side, pay the price of a second swarm, and no more; the better plan would be to reject it altogether, and leave the cottager to congratulate himself on the successful issue of his intended fraud. The weight and size of a swarm are good *criteria* by which to judge whether it be a first or second, but they cannot always be depended on, and it is only the professed apiarian who is able to arrive at a just and definite conclusion."

A good swarm should consist of from twelve to fifteen thousand bees, and such a swarm, hived in May, will have bred many thousands, considering the number of eggs laid by the queen, before the end of June; and during the whole season, which extends

nearly to Michaelmas, the number of bees hatched will, with common success, amount to upwards of five thousand. These, added to the original number of the swarm, will swell it to the amount, as some reckon, of upwards of fifteen thousand at the conclusion of the season (Michaelmas), when the stock is either destroyed, or, technically speaking, deprived. Under the latter dispensation, the mortality of these insects is sufficiently great, since the numerous stock above stated, would not, in all probability, by Christmas, consist of many beyond five thousand. Even at Michaelmas there are seldom found, in a good stock, more than eight thousand. Thus the life of a working bee, upon the average, is not above six months; incessant labour, and the accidents to which insectile life is necessarily subject, contributes to a constant mortality. The bees bred at Michaelmas, and which nurse the young swarms in the succeeding spring, are supposed to be the longest lived, as not having been exhausted by labour during the first four months of their existence. It has been said, upon the authority of Mr. Huish, that the life of a queen bee has extended to four years.

This may be as proper a place as any, for a few words of discussion on the old question of the expedience of destroying the bees, in order to take the honey, or *depriving*, that is to say, *driving* them from the old to a fresh hive. Mortimer, who wrote about a century since, adverts to this disputed point, and decides, from practice, in favour of the common method, destroying the bees. A late French and practical apiarian writer held the same opinion, for

which he advanced apparently cogent reasons. All our late English apiarians, Mr. Huish at their head, oppose themselves redoubtedly to the practice of destruction. As to the grand point, that of interest, little has been hitherto advanced on either side of a very preponderating nature. Under the system, almost universal, of destroying the bees, no deficiency of those insects, of which I have ever been apprised, has occurred. On the other hand, perhaps some small deterioration of the quality of the honey may accrue from the fumigation by which they are destroyed.

With respect to the argument of HUMANITY, it is by far too fine-spun, to endure the wear and tear of ratiocination. Boasting, as we bipeds do, of our reason, and all that, I shall not insist on the argument of the *lex talionis*, furnished by the cruel conduct of these half-reasoning insects to their fellows. Yet since drones are murdered, why not murder their murderers? Did we not suffocate them, their fragile lives would naturally cease in two or three little months, or many of them would perish miserably, by the thousand accidents to which they are liable. The grand argument of Mr. Secretary Isaac—'the Creator has not authorized me to destroy *one* without cause,' is thoroughly seasoned with the flummery and blarney of modish pseudo-philanthropism. We find special *good cause* for the slaughter of lambs and calves, and of every living thing which it appears to be our *interest* to kill; and therein we follow a primary law of universal nature. The cowardly and irrational dread of putting a period to animal life, is the constant source of protracted and horrible animal

misery. The most exquisite inflictions of savage barbarity have never equalled, in effect, the slow and lingering tortures conferred upon unfortunate animals, by the graces of a left-handed philanthropy. In fine, let the bee-master make fair experiment of both the methods, and then his election. I shall anon give the common rules of both.

Mr. Isaac, in his useful little tract, gives the following definition of a few APIARIAN TECHNICALITIES. I copy them as being rather more precise than those to which I have been generally accustomed. By *Colonies*, are to be understood bees in double or treble hives. *Stocks* designate bees generally, at the end of the season. All bees, from the season of hiving, till its conclusion at Michaelmas, are called *swarms;* subsequently, *stocks*, if in single hives; *colonies*, if in double. A swarm having thrown out a swarm, becomes then a *stock*, although it may have been hived but a few weeks. Such superabundant swarming in this climate is disadvantageous. Swarming, generally, continues between two and three weeks.

Mr. Brown, of Renfrew, N.B. had a hive which cast *three* swarms in 1807,—*five* swarms in 1808,—*three* swarms in 1809,—and *four* swarms in 1810, the parent hive still in good strength. In 1826, Mr. E. Day, of Coldblow farm, Hucking, took from fourteen stocks of bees 576 lbs. of honey.

In the year 1814, imported in the Aurora, from Papenberg, honey 41 casks, 68 cwts. 1 qr. 23 lbs. In another ship, 8424 lbs. From Amsterdam, 4 hhds. and 12 casks, 50 cwt. 2 qrs. 14 lbs.

The VIRTUES of honey, and the various uses of wax, the staple articles of our subject, are too universally known to need recapitulation. It is probable, however, that honey is better adapted to occasional and medicinal, than general dietetic use; and also that in some constitutions it has the effect ascribed to it by the ancient naturalists, of exciting melancholy. During the early attempts to abolish the slave trade, it was proposed to substitute the use of honey for that of sugar, which was but too truly stigmatised as the blood and sweat of human beings: the abolition of sugar, and of slavery, however, had then equal success. Since that period of national shame and disgrace, and highly to the honour of the present inhabitants of our country, the infamous and detestable system of human slavery in our colonies is abolished.

British honey is more solid, more apt to granulate and crystallize, and generally more pure and free from adulteration, than the fine Southern and Mediterranean species. The superiority of the latter, which is liquid, consists in its fine fragrant flavour, often scented with wild thyme and odoriferous herbs. The present retail price of the Minorca, or best foreign honey, in London, is two shillings and sixpence per lb.—of the English, equally good perhaps in essentials, two shillings. The late Dr. Reece assured me, that in his experiment of distilling honey, comparatively with sugar, a pound of honey yielded considerably more alcohol, or spirit, than a pound of sugar.

Of WAX, the consumption is, necessarily, far

more extensive than of honey; and of the former this country has always stood in need of a considerable import, a circumstance not to be regretted, since there must be some commercial reciprocity, or how is commerce itself to subsist? In Mortimer's time, we find wax was an article of never-failing ready sale, and the price was then from five to six pounds per cwt.; at the present, (1834) from six to eighteen guineas. The method to obtain pure wax, is to preserve the hives constantly free from water and damps, and indeed all foulness; to insure which, they must not be retained in use after becoming worn with decay.

Propolis is that viscous matter or cement, of the nature of wax, with which, notwithstanding its viscosity, bees, as they are commencing labour, glue up all the crevices of the hive. This somewhat ductile substance is of a dark brown, and sometimes auburn hue, and in countries abounding with odoriferous flowers and shrubs, it emits a grateful perfume. It is of a resinous quality, and has medicinal uses; is also a varnish of a superior kind. It is efficacious in hoarseness, appeasing the cough.

Undoubtedly, the best and most promising situation for establishing an apiary, is the vicinity of woods and commons, and of brooks, rather than of large lakes or rivers, in which the bees, when drinking, are often driven away and perish. A dry air and a light soil, productive of odoriferous shrubs, are also essential to the production of the best honey and the finest wax; but as bees are little injured by cold, they may be kept upon any soil which will feed them, on the condition of their being

preserved free from moisture and damps. The bee will travel to the distance of six or seven miles in search of food, guided by an instinctive power of smelling at a distance, that which is most agreeable to its nature. It has the labour of returning home laden, and of repeating that labour through the day. All keepers of bees, therefore, who desire to profit by them, should plant, to a certain degree, for their provision, perhaps in any situation; but in those which are unfavourable, ample successions of the shrubs, flowers, or plants, most agreeable to their taste, should be cultivated. It is obvious, the shorter journeys the bees have to make, the quicker and more ample will be their returns, and that chosen food of the best species must also contribute to excellence in the quality, as well as the utmost increase in quantity, of the honey and wax produced. Hereafter follows a list of the chief articles of BEE FOOD, which may easily be enlarged, if necessary, by inquiries in the country.

Lisle and the old bee-masters recommend turnips to be kept, the blossoms of which are the earliest spring food; the meadow and hedge-row flowers soon succeed. The blossoms in May, of all fruit-trees; all of the turpentine or pine class, and the linden tree. Vetches, beans, white clover, lucern, and sanfoin; but it is said the humming or humble-bee only is able to feed on broad clover, from the length of its proboscis. Buck wheat is an article of great consequence where food is raised expressly for the use of bees. Heath, furze, and broom stand in the first rank, as most

sought, and most salubrious to the insects.—In the gardens the crocus ought to be extensively cultivated. It may be considered as the earliest food of the bees from an artificial source, as the willow and the furze are from a natural one.

With the view of imparting a fragrancy of flavour to the honey, the odoriferous shrubs, thyme, lavender, sweet marjoram, and their like, with strawberries and raspberries, should be planted. The sunflower, holly-hock, and poppy. Burrage-flowers, from their long blooming, are of the greatest use. Marshmallows abound in farina. Melilot, a biennial plant, found in hedges and underwood, which flowers in July, is much sought by bees, and greatly productive of honey. It was formerly said to equal lucern, as food for horses, thence worthy of a modern trial, which I gave it in 1828 and 1829, on various soils, finding it immensely productive. It is, however, not a favourite food with horses or cattle, until they become accustomed to it; the case with nearly all artificial grasses; yet it is in constant use on the continent, and was formerly cultivated in this country. Mignonette is supposed to be the richest in honey of all flowers; bees are also particularly fond of those of the verbinia and stertian, of the blind nettle, the bean, of cabbages and cauliflowers: in Autumn, oak-leaves, and those of all trees on which the honey-dew is found. The fragrant flowers of the *Tilla Europæa*, or lime, a handsome and ornamental tree, are highly relished by bees, and are said to make most excellent honey. The beautiful white

and smooth wood also of this tree, is in constant and general use with the carver, the turner, and musical instrument maker.

The APIARY should be fixed in a dry and sheltered situation, and so far detached that it may be well defended from every kind of vermin, the bee having many enemies. A south-west aspect is recommended by the elder apiarians, on the ground that, from the south-east, the bees are disturbed too early, and thence do not work so late in the evening, by which they are losers. Whether the use or curiosity of this idea predominate, I have not sufficient experience to decide; but certainly in some situations a S. W. aspect may be improper, and shelter from high winds is at any rate indispensable. The apiary should not stand contiguous to shrubs or plants of a height equal to the entrance of the hives, which may impede the flight of the bees heavily laden, on their return home: nevertheless, low trees, shrubs, bushes, and espaliers, close at hand, are necessary on which the swarms may alight. The BEE-HOUSE or hives should be so posited, that access may be had around them for the purpose of detecting or removing any nuisance; and the ground should be kept free from weeds, or any harbour of vermin, and in a state of perfect neatness, in which the bees delight. Gravel walks and flower borders, are the useful and ornamental features of the apiary.

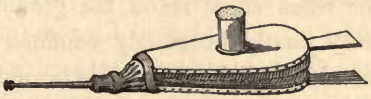
HIVES either stand in a bee-house, box, or shed, or under a thatched or other kind of roof. The STAND on which the hive is placed, should always be kept

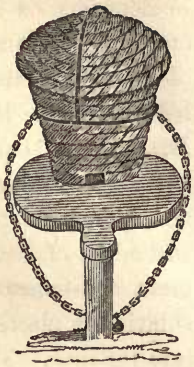
clean, particularly so in the spring, at the commencement of the working season. If it be at times sprinkled with a little salt, it will be very conducive to the health of the bees. In short, all impurities should be removed from within and without the hive, in order to save the cleanly insects the unprofitable labour of the removal of nuisances.

Bee-hives have ever varied much, both in their form, and the materials of which they have been constructed. In the natural state, these insects, of course, take possession of any hollow vacant spot convenient for their domicile and laboratory—a hollow tree, chasm in the rock or bank—or the wall or roof of a deserted building. In such places they enclose themselves, always dwelling and labouring in the dark. Taken under the protection of man, they will remain in any kind of dwelling appropriated to their purpose, and hives have been made of wood, for example, of a cask; of wicker work plastered, and of straw: the latter material, in England particularly, has long had the preference. There are glass hives, for the purpose of inspection. Common straw hives, are to be had in any part of the country: in London the price of them is half a crown, and three shillings per lb. extra for any glass in them which may be required.

Apiarians have not yet agreed on the most advantageous form of the hive, a great number of them tasking their invention, and each recommending his own form. Mr. Huish, as the last, ought to be, on that account, and from his great practice is, most to

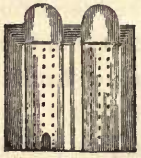
be depended on in this particular. Indeed, he is the author to be studied by those who are ambitious of obtaining a complete theoretical and practical knowledge of bees; his Cottager's Manual, and that of Isaacs, being equally convenient for those to whose use they are addressed. The Huish hive is conical, and approaches to a square as nearly as the materials will admit of, having a convex top or cover, with the great convenience of being moveable, and which is sufficiently plastered to prevent the admission of light into the hive. This hive is materially calculated for the plan of deprivation and preserving the bees. On either plan it appears also to be superior. The hive is furnished within with seven bars, on which the bees are made to attach the combs, as between each bar a piece of netting is placed, which prevents the bees from fixing the foundation of their combs between the intervals. Thus at any time, if a comb be wanted, the bees are driven from it, by means of the fumigating bellows, and being detached from the bar, the bees proceed to fill up the vacuum. In this manner the whole of the combs may be extracted for the purpose of examination, and replaced without ommitting the slightest injury to the bees. Mr. Huish, as Mortimer formerly, decries the common method of placing hives upon benches, from the dangerous and fatal quarrels to which it exposes the bees, and other objections, preferring to place them upon separate stools or pedestals of wood; in addition to which, Mr. Huish has in-





vented a chain, which encompasses the hive, and is locked to the pedestal as a security against robbers. The back part of the hive may be fixed within half an inch, or an inch, of the edge of the pedestal; but in front, a space of three or four inches is necessary as a landing-place, on which the bees may alight.

The tin entrance invented by Mr. Huish, of which we adjoin a sketch, should be attached to every hive. It consists of three tin sliders, all of them perforated with small holes, and one of them has an entrance only sufficiently large to admit of the ingress of one bee at a time. These slides are raised or let down as the occasion may require, and in case of an attack from wasps or marauding bees—or when snow is on the ground, at which time the bees should be closely confined: the utility of this machine will be at once discovered. Mr. Huish mentions an instance of a most extraordinary battle which he once witnessed, by the bees of 28 hives furiously attacking each other, and he attributes the salvation of the hives entirely to the use of this little instrument, for he was able immediately to contract the entrances, so that only one bee could enter at a time, and the besieged were, therefore, able to beat off the besiegers with the loss of a very few lives.



The hives should be ranged in a right line, front-

ing, as has been said, the S. E. or S. W. They may be placed two feet apart, and about the same distance from the ground. Should the apiary be extensive and the hives stand in double rows, Mr. Huish advises the chequered form—

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0 0 0 0 0

in which mode, the flight of bees in the hinder row will not be obstructed by the front hives. A bee taking flight from the hive, generally forms a considerable angle with the horizon in his ascent; and should the hive stand at too great a degree of elevation, the advantage would enable the swarm to take so extensive a flight, that they might be totally lost. But if the site be not sufficiently extensive to admit of the hives being placed in a right line, it is preferable to set them one over another in double rows. The pedestal or stool should have but a single leg or support, and its top, on which the hive is to stand, should be made of seasoned and substantial wood which will not warp, and which should be firmly nailed to the post, in a slanting direction, in order that the rain may run off, all stagnant moisture being highly inimical to bees.

Every possible method should be taken to prevent the access on the lodgment, in or near the hive, of the various ENEMIES of the bee—ants, moths, spiders, wasps; of these the MOTH and the ANT are the most destructive. Many birds, also, beside the tom-tit and sparrow, are bee-killers. The chief difficulty lies with the moth, the ant, and the wasp, in autumn. When the moth has obtained a con-

siderable footing, the bees will quit their hive. The prey of the moth is supposed to be the pollen, or bee-bread, in store, and the heterogeneous refuse attached to the wax.

A timely renewal of hives appears to be the only real remedy—to join the bees to another hive, and save the little left by the depredators. The too fatal sign, according to Huish, of a hive taken possession of by the moth, is an inaction of the bees during ten days or a fortnight, whilst the bees of other hives are in activity. The ascent of ants may be prevented by TARRING the lower part of the hive pedestals, and constantly repeating it when too dry.

In a thickly cultivated country, like England, it is an enormous scandal to breed and feed WASPS, when the fact is known, that to destroy a queen wasp in March or April, is to prevent the hatching of a whole nest. Thus if all the queen wasps in a country were destroyed, the whole race would be exterminated; and had effective measures been taken, as with wolves formerly, our country might at this day have been as free from wasps as wolves. The mother wasp is known by her superior size and greater brilliancy of colour beyond the common wasp. In a season between 1788 and 1792, wasps being in immense multitudes, I very soon killed fifteen hundred with my own hands, but could persuade no neighbour to follow my example. Merely stopping up the outlets of a wasp's nest is not at all to be depended on; sulphur and gunpowder are the only specifics. It has been ludicrously said, that were the bee-culture, in a country like this, carried

to the extent recommended by our sanguine apiarians, the honey-bee would, in no great length of time, become as great and dangerous a nuisance as the wasp.

To keep bees in the common mode of our own country, and I suppose of all others, is an occupation of little trouble, but attended with considerable gain. To manage the apiarian husbandry with effect, is a work not of expensive outlay, nor which requires much attention and vigilance, except at the season of swarming. Our country labourers, who have wives and children to assist in this business, are the part of our population most probable to be benefited by it. It should be encouraged among them by their employers, and a market always found in the parish for their honey and wax. This, however, was, until of late, in few parts defective. Dr. Mavor, in his account of Berkshire some years since, relates that a poor cottager cleared, in one season, TWENTY-SEVEN POUNDS by his bees: such a prize, I apprehend, has been seldom drawn in that lottery; but a poor family, with care, might almost depend on saving the amount of their rent, perhaps of their shoe-leather into the bargain. Rare instances have happened, in our western counties, of a hive producing forty pounds of honey in the season: twenty, down to twelve or fourteen pounds, are far more in course. But superior culture and attention will produce greater quantity of honey and wax. Of the latter, one pound and a half per hive is the usual product.

In the year 1822, remarkable for early honey gathering, several Oxfordshire apiarians had stocks, the gross weight of which was sixty to sixty-seven

pounds. In Lincolnshire, seven swarms were obtained from two old hives: that is to say, two top swarms, two second swarms, and from the two top swarms two virgin swarms, and from the latter a second virgin swarm. The first swarm was hived May 2, the last June 27. Another hive threw out four swarms within sixteen days.

The object, next to purchase, is the REMOVAL of the bargain homewards, which is always effected most conveniently and safely by water-carriage. In those cases wherein recourse must be had to land-carriage, it is managed by two men, having a pole between them, upon which the hive, wrapped in a sheet, is slung. But the most convenient method of removal is by a common hand-barrow, by means of which several hives may be removed at the same time; previously to which, however, the utmost caution should be used in stopping up every crevice or aperture by which a single bee can make its escape. Mr. Huish mentions an instance in which this precaution being not sufficiently attended to, the active little insects discovered an aperture whence they effected their escape; and the consequence was a furious attack on the porters, who very unceremoniously threw down their burthen, and the total destruction of the hives was the result. Previously to removal, the entrance of the hive should be closed with a tin-plate, pierced with small holes, to prevent the suffocation of the bees.

In our climate, although the bees may SWARM several times in a season, it is found, with few exceptions, that the first swarm only is worth preserving;

and as the first labour of these wonderful insects is to sweep and garnish their dwellings, and remove all obstacles to their industry, as much as possible of this labour must be done for them, by rubbing the interior of the hive with a hard brush, in order to remove all loose and projecting straws.

The spring and summer duty of the apiarian is to watch the motions of his bees, to protect them from enemies, to secure the swarms, and move them temporarily, on a deficiency of food at home, to a more plentiful pasture, which is customarily done with safety and success. In the winter months, the chief care is to feed the stocks when needful, and to protect them from every annoyance, particularly that of damps and moisture, and the melting of snow.

Mr. Roberts, of Battle, Sussex, had a hive of bees which swarmed in the last week of February, 1822, one of the mildest winters on record, all over Europe; but mild winters, from the moist state of the atmosphere, are inimical to bees; a cold and severe winter is favourable, particularly to weak hives, on account of the torpid state into which the bees are thrown, and consequently the small quantity of honey which they consume in that state must, on the principle of economy, be highly advantageous to them. No cold of this climate was ever known to destroy a hive, although ignorance may have given it as the cause; and indeed the practice in some counties of wrapping up the hives in blankets and other warm coverings to protect them from the cold, is founded on antiquated prejudice and error.

The months of MAY and JUNE are the periods of swarming, but the precise departure of the swarm depends in a great measure on the state of the weather. The swarming season is the most important and anxious period of the labours of the apiarian, for on its successful issue depends the chief part of his profit. It should be the aim of every keeper of bees to make himself thoroughly acquainted with the chief symptoms of the departure of a swarm, for his ignorance on this point will expose him to a certain loss. Circumstances may possibly so combine, as that the most experienced apiarian may be mistaken in his calculations; but in the majority of cases, the prognostics of a swarm are so decisive, that the precise period of its departure can be definitely fixed. The vacating of a hive may be considered as the preliminary symptom, as it bespeaks an active and increasing population; and the bustling disposition of the drones about mid-day, is confirmatory of the approaching swarm. The surest criterion, however, is, the clustering of the bees on the front of the hive: and whenever this circumstance takes place, it becomes the proprietor to be on the alert, and to keep a strict watch on the hive, from nine A. M. to about two P. M. Previously to the swarm leaving the hive, the bees are observed in a great bustle about the entrance—running in and out of the hive, and on any one approaching it, the bees evince an uncommon degree of irascibility, attacking indiscriminately any object that presents itself. A small hive generally swarms earlier than a large one. The rise and departure of a swarm is

a most curious and gratifying, and, to a degree, anxious spectacle to the proprietor: but to any unfortunate animal upon which the swarm may alight, almost certain destruction, against which, the numerous examples ought to excite every possible caution.

The accustomed music of warming-pans and tongs on this occasion, is an ancient fallacy of no kind of use; or was perhaps originally practised to announce the proprietor's title to the swarm, which he had a right to follow into other persons' grounds. In regard to the clustering of bees, a great mistake is sometimes made by the inexperienced apiarian, when he sees his bees after the swarming season clustering about the entrance, for he immediately concludes that he is going to be enriched by another swarm, whereas it is merely an indication of a want of room in the hive, and the remedy is very simple; by placing an eke under the hive, the bees will cease from clustering, and proceed immediately to fill up the vacant space.

Early drones, early swarms—new swarm, new hive.—The latter ought to be an indispensable apiarian rule, though so often infringed by cottagers, who do not scruple to put their young bees in old shattered hives, already swarming with vermin. The swarm being overtaken, should be hived with all possible expedition, lest they take a second flight. This duty can better be performed by experienced workmen or women than here described. The hive should always, if possible, be put under the swarm, and the bees shaken or brushed into it with a goose

wing or bough. The hive is then to be covered with a sheet or table-cloth. In which situation it is to be left till night, when it may be removed to the station allotted for it. The swarm should never be placed in the immediate vicinity of the parent hive, in order to prevent any confusion in the choice of the hives which the bees have to enter. On this and all similar cases of danger from the sting of the insects, the too common practice of acting without cover for the exposed parts of the body, is most rash and indiscreet. The injury received may be considerable, and besides, a person without defence cannot act with the necessary coolness and effect. The neck, hands, and legs should be covered, the face defended by a mask of thin iron wire, and a linen hood or cloth thrown over the cap upon the head, the hood to fall and be fastened below the shoulders.

The SWARM may divide itself into several clusters, in which case there are several queens; on being hived together the bees will kill the supernumerary queens. But when an individual swarm is hived and the bees are restless and discontented, it may be judged that they have no queen, in course that they will not remain. A queen must be immediately provided for them from the parent stock. Queens are discovered by their being surrounded by small groups of bees. FIRST swarms from different hives uniting, must be separated. The management of second swarms forms a very interesting branch of the apiarian science, as its success depends so much on the skill and experience of the proprietor. In saying that first swarms only are worth preserving, we speak of general cases,

for it is demonstrated by Mr. Huish, that a very good stock may be formed by the union of second swarms. It however seldom happens, except in very extensive apiaries, that two second swarms come off at the same time, so as to enable the apiarian to take advantage of the junction, and it is on such points that the whole skill of the proprietor must be put forth. The following particulars must principally occupy his attention: the size of the swarm—the earliness or lateness of the season—the richness or poverty of the country in food—all of which must be more or less consulted in second swarms. In the management of the majority of cases, it would contribute to the interest of the proprietor, and also to the prosperity of the parent hive, to destroy the queens of the second swarms, and return her emigrant subjects to their original domicile—nor is this operation attended with any difficulty. Second swarms are seldom large, and whilst the bees are in a cluster, on the place of their swarming, it will be a very easy task to take the queen bee a prisoner, but by no means should the captor immediately become a regicide. Confine her for a day under a tumbler, or other similar vessel, and in the meantime, return the bees to the parent hive. A few hours will determine if their former companions will receive them hospitably, and if such be the case (and the contrary very seldom happens) the murder of the imprisoned queen must be the consequence. Instances are by no means rare, in which second swarms have individually prospered well, and have collected a sufficiency of food to support them during the winter.

The junction of second swarms is a very nice operation, and requires great judgment in the management. Supposing that two second swarms come off together, the queen must be taken from the smaller one, as in the preceding case, and kept a close prisoner. Proceed then to hive the larger swarm, and immediately after shake the bees of the smaller into the same hive. It would be advisable in this stage to have some sweet liquid at hand, wherewith to sprinkle the bees copiously, for the purpose of confounding their respective scent, and then deposit the hive *at the place where the smaller swarm settled.* A very short time will determine the terms of intimacy which subsists beween the two swarms; if they agree, their combined numbers will insure the prospect of the hive, and on the contrary, if they disagree, it is most probable, that the bees of the smaller swarm, having lost their queen, will return to their parent hive, and this is by no means to be regretted by the proprietor.

DEPRIVING, or gathering the harvest of honey from the hive, should be performed in August, immediately after the swarming season, for which Huish gives the satisfactory reason, that the bees, from that period to October, may replenish the vacuum left in the hive. The improved hive is far the most, perhaps the only convenient form for this practice, which is sufficiently simple and easy. Ascertain the weight of the hive, and the quantity of honeycomb proper to be extracted, and commence the operation as early in the evening as the bees shall be at rest. Revert the full hive, and place an empty one of precisely the

same diameter over it; being fitted, that the bees cannot escape, tie a large sheet or cloth round them where they join. Beat the sides of the full hive with the hand or a stick, in those parts to which the combs are attached, parallel with the entrance.

The bees, alarmed, will all ascend into the new hive in a few minutes, which will be known by a general humming, and the hive may be then placed upon the pedestal. The old hive must be then taken in-doors and the honey-comb cut out *secundum artem*, and to the proper extent, leaving the bees a winter store, that is, the weight of the hive should not be under eighteen or twenty pounds. Attention should be paid, not to cut into two or three combs at once, but having commenced cutting one, to pursue it to the top of the hive. This business finished, the hive should be inspected and made perfectly clean. It may now be returned to its pedestal, and the other hive containing the bees being reversed, the old one placed over it, and being so left till morning, the bees will be then found in their native domicile.

In the performance of this operation, particular attention should be paid to the part of the hive which is to be beaten, for if it be done indiscriminately, the ruin of the hive will be the consequence, owing to the fraction of the combs. The operator cannot err if he places the entrance on his right hand, and then beat the hive on that and the opposite side.

The common mode of destroying bees by SUFFOCATION, in order to take the whole produce of the hive, is as follows. The easiest method of performing this operation, is to dig a hole, in which put a

bundle of matches, or pieces of linen impregnated with sulphur, which having ignited, place the hive, covered by a thick cloth, over it late in the evening, when all the bees have returned from the fields, and the sulphureous exhalations will prove their instant death. Mr. Huish, however, recommends in those cases where recourse is had to suffocation to obtain the produce of the hive, not to make use of sulphur, but of dried leaves, or any other substance which emits a good volume of smoke, and by this means merely to stupify the bees, and then to join them to any of the weak hives of the apiary. The fume of the sulphur is said to injure the quality of the honey, but that opinion certainly is not corroborated by the experience or complaint of the body of consumers, although perhaps nine parts in ten of the honey consumed is obtained by suffocating bees.

Drawing off the virgin or first honey, squeezing the second sort, management of the wax, and storing the whole, must necessarily be confined to practical and experienced hands; and with respect to those apiarians who are desirous of entering extensively into the culture, their own personal attention will be necessary, and they will find their account in proceeding with Mr. Huish's comprehensive Treatise in their hands.

A considerable stock will require a storehouse or room, expressly for the purpose, having a south aspect; and the bees, should they have been suffered to live, should be completely shut out, as they will instantly smell the sweet spoil, and soon cover it, if admitted. EARTHEN VESSELS, HORSE-HAIR

CLOTHS, LINEN CLOTHS for pressing, BUCKETS, or GLAZED EARTHEN two-handled vessels, are the implements for use, and CLEAN WASHED HANDS, with general cleanliness, are highly necessary. The combs are cut into small pieces, always best in a horizontal direction, that is, not across the middle, but twice at the top and the bottom. Warm sunny weather suits this operation best. All the utensils, cloths, &c. should be taken to the apiary, after having been used, when the bees will clear them of every sweet particle left; but this should be performed in the morning of a fine day, and no old or candied honey should be given them, because it daubs, and adheres to their feet and bodies, and may destroy them. In this country, one hundred pounds of honey-comb will yield from three to five or six pounds of wax; in some of the southern countries nearly double that quantity. Transparent white honey is to be preferred to the higher coloured; new to old, and that of the spring to the summer or autumnal honey.

The WAX being crumbled or pressed, must be boiled in water, and then strained from bags into a tub of water. The water being strained when the wax is cold, it may be collected, boiled, and when cool, will be found in a cake on the surface. It is refined by repeated boilings in pure water.

The feeding of bees, though slighted by some writers, is attended with the greatest advantage, not only to weak hives, but even to the most populous ones: and the practice is generally recommended by our most experienced apiarians, to

give every hive, whether weak or strong, a certain quantity of food in the spring. It cheers and encourages the bees at the outset of their labours, and it is a fact well ascertained, that a hive which has been fed in the spring will swarm sooner than one which has not been fed. This alone is no trifling consideration, and the expense is so small, and the trouble so little, that to neglect it is highly censurable. The cottagers, however, adopt in general a most erroneous method of feeding their bees, which consists in putting a small quantity of coarse brown sugar into a narrow wooden trough, which is put into the hive at the entrance, and this is what they ignorantly call feeding their bees. A hive may be fed either exteriorly or interiorly; the latter method is to be preferred, as no risk is thereby run of an attack from other hives, which is too often the case when the former is adopted. Honey is naturally the best food for bees, but as a substitute, boil a pound of coarse sugar in three pints of ale—let it stand till cold, then pour a portion of it into a plate, and placing some straws over, deposit it on a fine day in the immediate vicinity of the apiary, and the bees will soon convey the whole of it into their respective hives. This may be called general feeding, as the whole apiary partakes of the food; but in private feeding, the plate should be put into the hive at night, carefully closing the entrance, either with the tin sliders, or with any substance which may be conveniently at hand. On the following morning the whole of the liquid will have been conveyed into the cells, and the plate must be taken away. If a little salt be mixed with the ale

and sugar, it will contribute greatly to the health of the bees. It is a gross error to believe that feeding makes bees lazy; on the contrary, it raises their spirits, and induces the queen to commence the laying of her eggs much sooner than she otherwise would do.

The chief DISEASES of bees, generally arising from damps, cold, or poverty, and occasionally from the excessive heat of the sun, when shelter is necessary for the hive—are dysentery, or looseness, torpor, falling in flight from vertigo or giddiness, lice. Care and good feeding seem to be the only remedies, on which much dependence can be placed. Good old port wine mixed with honey, and toast soaked in old beer sweetened with honey or coarse sugar, are the chief specifics in repute.

Keepers of bees should always have at hand pure olive oil as a remedy for the STING of those insects, to be dropped instantly on the wound: or Venice treacle, which some mix with oil. The juice of onions and salt mixed, is also used for the same purpose.

To STORE, or preserve honey, the vessels or jars in which it is kept, should be well and tightly covered or corked, and the store-room be quite dry, as honey imbibes damp, by which it is deteriorated in quality, and in the end turns sour. Honey is often adulterated with flour and similar substances, to increase its weight.

To clarify honey, place the vessel containing the honey in hot water, and take off the scum as long as any arises, afterwards stop close.

METHEGLIN, or MEAD. The once common drink of this name, was a mere unfermented mixture of

honey and water. Economists rinse the linens which have been used for filtering the honey in this mixture. The FERMENTED mead is made in the proportion of one pound of honey to three pints of water; or by boiling over a moderate fire, to two thirds of the quantity, three parts water and one part honey. The liquor is then skimmed and casked, care being taken to keep the cask full while fermenting. During the FERMENTING PROCESS, the cask is left unstopped and exposed to the sun, or in a warm room, until the working ceases. The cask is then bunged, and a few months in the cellar renders it fit for use.

Mead is rendered more vinous and pleasant, by the addition of cut raisins, or other fruits, boiled after the rate of half a pound of raisins to six pounds of honey, with a toasted crust of bread, an ounce of salt of tartar in a glass of brandy, being added to the liquor when casked; to which some add five or six drops of the essence of cinnamon; others, pieces of lemon peel and various syrups, and amateurs according to their particular tastes. This ancient beverage has, however, been many years neglected, and the small quantity made is confined to private families, the duty upon it for public use having banished it as an article of commerce. Metheglin is but another name for mead, and the process of making it very similar, depending much or entirely on taste and fancy. The duty on this article being utterly unproductive, it is submitted whether its repeal might not be eligible, by so giving the article its fair commercial chance.

From late and somewhat extensive inquiries, even in those districts apparently best calculated for the

apiarian husbandry, I find it very little attended to, either by farmers or labourers. The whole attention of the former is unfortunately absorbed by far heavier concerns; and the pauperism and demoralization of the latter allow them neither ability nor inclination for the pursuit. I am informed by a labouring man in Surrey, who has a property in two or three closes of grass, that in 1827, he (the only one in his parish or vicinity who kept bees) had a few hives, but finding a difficulty in disposing of the honey, he converted it into mead, which he sold more readily, at eighteenpence the bottle. He experienced much inconvenience and loss from the attacks and depredations of wasps; but much greater from those of distressed, but barbarous and vindictive wretches, unemployed and let loose upon the country. They beat down and took away his hives, out of mere wantonness and malice, leaving them, with their inmates, spread about the highways. He has since kept no bees. He found a difficulty in supplying the bees with winter food; and no hucksters, or dealers in honey, ever attended that part of the country, as is usual in some, but at present, few other parts.

The following information I have derived from Mr. Hagger, a considerable oilman in Lamb's Conduit-street, London. The previous neglect of the bee culture, and the bad season of 1829, had so reduced our stock of native honey, that a still greater reduction was to be expected. Foreign import has been gradually increasing during past years. Of all the honey imported from the Continent, the French is the most pure, far more so than our own; which, however, in quality, and for medicinal use, is found

equal to any foreign. Present price per lb. of the best foreign, eighteen-pence to two shillings—of English, nearly the same. Our honey is chiefly collected by the London and country dealers, from the labourers in husbandry, by whom the culture of it has long since been so much neglected, that not half the quantity formerly gathered can now be obtained, and even that quantity has been annually decreasing. Very few farmers trouble themselves with it. In Mr. Hagger's opinion, it might be of great use and benefit to the labourers, were they in a state to attend to it, as in former times, when five guineas per annum has been so acquired by a cottager. Surrey, Bucks, Herts, and Essex, perhaps, furnish the metropolis with the most considerable quantities of honey. In past years, Mr. Hagger has collected as much as half a ton in a season from Herts, where lately it has not been possible to obtain half that quantity.

The chief customers for honey are the druggists and considerable families; the labouring classes seem entirely to neglect it. Scarcely any demand remains for the purpose of mead, that liquor being nearly out of vogue. Bees-wax is imported chiefly from Africa and from Russia. The English wax is esteemed the best, price from eighteen-pence to half-a-crown per lb. The opinion seems to prevail generally, that the old custom of destroying the bees is the most advantageous. Preserving them may succeed in a plentiful year of honey, otherwise the winter stock of bee food must be defective, and the hives most distressed will attack and rob their neighbours; or it may happen, that bees with a short supply will abandon their hives, carrying the stock of honey away with them.

The following interesting account of the export of a stock of BEES to New South Wales, has been communicated by Dr. Wilson, a friend of the publisher.

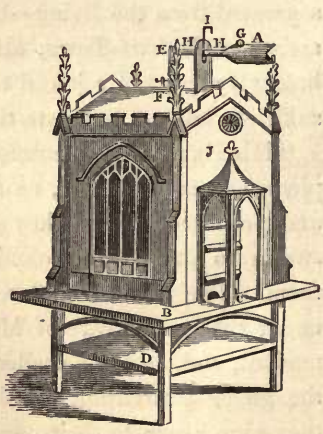
"A very strong hive was presented to me by Mr. Gunter, of Earls' Court; they were embarked at Deptford in the ship John, September, 1830. Sailed from Spithead, 14th October, 1830; I arrived at Hobart-Town, Van Dieman's Land, on the 27th January, 1831. During the voyage, the hive was placed on the front of the poop, and protected by a large wire frame, the bees were thus at liberty to take the air without being enabled to escape. Notwithstanding the greatest care, vast numbers of the bees died; many of them from injuries received by flying against the wire-work, especially during the hot weather. Shortly after we passed the torrid zone, I thought it advisable to confine the bees to their hive; I therefore placed a piece of perforated sheet-lead against the aperture; I had it removed once a week, that the dead bees might be separated from the living—this was easily done. On arrival at Hobart-Town, although the mortality had been very great, I rejoiced to find that there was still sufficient left to propagate their race.

"His Excellency Lieutenant-Governor Arthur was pleased to accept them, on the part of Government; and promised, should they succeed, to distribute the swarm to any of the colonists who might apply for them. The hive was placed in the public garden, under the special care of Mr. Davidson the superintendant, and, as his Excellency had commanded that the greatest attention should be bestowed on them, they soon began to thrive and increase. In the space of one year there were seventeen swarms.

"On my revisiting Van Dieman's Land, in August, 1832, I carried the original hive I had brought from England to Sydney, and presented it to Alexander Maclean, Esq. colonial secretary; but, from some cause which I cannot explain, they did not promise to be so prodigiously prolific.

"From the great success that the bee has met with, it is probable that it will shortly become an export of some value from the colony; it is a singular fact, that though most of the native flowers and shrubs abound with saccharine juices, the bee scarcely sips or lights upon them at all, preferring on all occasions the flowers of plants raised from English seeds around them."

The following cut represents an [*improved bee-house*] *constructed by Mr. Saul, of Lancaster, which we readily give insertion to, as a subject of interest to bee-fanciers, and as ornamental to a flower-border. Mr. Saul's description of it is as follows:—*



"Having very frequently remarked, that, when the entrance of a bee-house is on the windy side, the bees, on bringing home their load, are blown down, (on which it is curious to observe how the other bees will assist them to rise,) I have had mine so constructed that the entrance must always be on the side opposite to that

from which the wind blows. Another desideratum I have accomplished is, that of being able to weigh the hive at any time with the greatest nicety, and to know the weight of each day's produce, without disturbing the bees in the least. The contrivances by which these things have been effected will, I presume, be readily understood by an inspection of the accompanying drawing. A represents a vane that turns the house on the stage B, so that the entrance for the bees at C is always from the wind; D the centre, which the house revolves on: E the place where the wire is fixed, that is attached to the hive within the house, which hive is made of straw in a conical form, with a deal bottom; F, a pin that passes through a loop, so that the wind will not disturb the bees in the hive. When I wish to know the weight of the bees, I take out the pin F, and then place weights on G H H, the beam. I is the beam pointer; J the end which takes out when I wish to change the hives. On one edge are two pins, and on the other a lock. The pins fit into the stile, so that my bees are quite safe from intruders."

Mr. Bagster, of Shepherd's Bush, a friend of the publisher, has communicated a system of management in the bee husbandry, said to be both a novelty and an improvement. The following particulars are submitted to the consideration of the reader, with the advice of an experimental test. The chief objects of this plan are—the prevention of swarming when undesirable, and the excitement to swarm when desired or needful, with a greater facility in taking the honey. The mode by which these desirable

results are to be obtained, is the use of *ventilation*—it being averred, that the excessive heat and want of room in a full hive, drives out the queen, who having left the hive with her labourers, frequently sets the example to others, and more especially, should many eggs have been left in the cells, which are soon hatched by the extreme heat of the hive. Mr. Bagster has two of these hives at work, but, as they cost five guineas each, it may be presumed they are on too expensive a scale for the generality of country bee-keepers, for whose convenience he has adapted the principle to the old mode of culture, and has had his stock in operation during two years, without swarming, although very strong.

The same gentleman has also introduced an entirely new hive, on the principle of ventilation, which for ease of management, adaptation to the old modes, and purity of the honey, he flatters himself to be the *ne plus ultra* of bee husbandry. He designates it the LADIES' SAFETY HIVE. It does not require a bee-house, or any covering, but merely a post fixed in the ground, having a level summit for the hive to stand upon. The reader is farther referred to Mr. Bagster's work on Bees, and to Messrs. Chubb and Co., seed warehouse, Newgate Street, where he may have the opportunity of seeing and examining the improved hive.

SECTION XIX.

The Brewery.

MALT LIQUOR, or BEER, is styled the natural beverage of Englishmen: which being rendered into plain English, will stand thus—our country produces the materials, and custom almost immemorial has established the manufacture, and sanctioned its universal use. There is, moreover, another sanction of superior rationality to mere custom. The quality of genuine malt liquor, when of sufficient age, but *not old*, is peculiarly nutritious, adapted to the moist and variable climate, and to the constitutions of the people of this country. To speak first of the

PUBLIC BREWERY. It is to be lamented, that commercial and fiscal interests have interfered, most mischievously, in this great article of human subsistence. The BREWERY represents one of our most considerable and profitable manufacturing concerns; from its universality, the most convenient and ready instrument of taxation. The consequence has been, that the health and interest of the people have, on this, as on every other occasion, been sacrificed to fiscal and trading profit. The exigencies of the state have demanded an enormous impost on malt. This the brewers cannot afford to pay, preserving at the

same time their commodity at the fair standard of quality, without a rise of price too considerable for the ability of the great body of consumers. Other measures must then be resorted to.

Recourse has, in consequence, been had to scientific and chemical aid, in order to enable the brewer to find substitutes for the prime material, and so draw a greater length from the usual quantity of malt: in plain terms, to produce a factitious or composition beer, from the least possible quantity of the most precious article. Of late, the process of adulteration seems to have been in the hands of the publicans of the metropolis; great numbers of whom have been detected by the excise officers within the present year, and fined one or more hundreds of pounds each, without any hope of mitigation. Bay-salt, sugar, treacle, colouring, copperas, and water, were the chief articles detected. Thus taxed, malt has given place to less salubrious and substantial articles, and to untaxed and potent drugs; and, unfortunately for the health and habits of the people, the beer of commerce has been, too generally, an intoxicating and stupifying, instead of an exhilarant and nutritious drink; and to crown the evil, the public taste has been vitiated, and ADULTERATED beer has long since obtained a decided preference over the genuine and simple product of malt and hops. The nature of this composition has generally depended on the skill or ability of the brewer. With some, it has proved a liquor of luscious flavour, impregnated with a fiery, inebriating spirit; with others, a vile, mawkish, ill-flavoured balderdash, to use a

vulgar phrase, which experience has rendered but too appropriate of the true rot-gut quality.

In justice to the common brewers, it must be acknowledged, that, on the occasion of a fall in the price of malt, they have customarily improved the quality of their beer. The origin of the grievance may doubtless be traced to excessive taxation, which, so materially enhancing the first cost of malt, must also operate considerably in prevention of that part of the labouring classes, disposed to brew their own beer, from so doing; since the wages of the labourer, the agricultural more especially, are seldom permitted to have their spontaneous and independent rise, in proportion with the advance of the first necessaries. The natural, indeed unavoidable, consequence is, a resort to the public house, where habits of society are acquired, seldom to be afterwards eradicated; and enjoyments experienced of a very different nature and consequence to those which a man finds in a sober and economical home.

In the introductory part of the subject of private brewing, I feel it necessary to remark on the usual mode of treating it; and on the, in my estimation, rather too sanguine expectations of its advocates, who appear to entertain hopes of inducing, by their arguments, almost every family, without distinction or exception, to brew their own beer. My aim is, to separate the declamatory and impracticable from the rational and useful; to address the soundest and best of those instructions, with which long experience and observation have furnished me, to those

persons and quarters only, where I know them to be really applicable.

That noble national manufacture, the PUBLIC BREWERY of civilized and commercial England, has long subsisted and flourished, and must continue so to do, in full and increasing prosperity, so long as beer is the staple beverage of the country, and so considerable an article of export trade. Houses of public entertainment, or ale-houses, also, there always must be in a great, commercial, and luxurious nation; and it is against the abuse of these solely, that the objections and complaints of the economical writer can have any force. To digress for a moment: it is not because we have brew-houses and ale-houses, or on account of the number of the latter, that the manners of our commonalty are corrupt and dissolute; the fundamental cause subsists in the excess of taxation, and the general inadequacy of the wages of labour. Hence is generated a desperation naturally leading to indolence, the neglect of social duties, and ultimately, or rather by consequence, to crime. The favourite plan of removing taxation, shifting it from one article or class to another, can have only a palliative, temporary, and deceptive effect; nothing short of economizing the expenses of the state, and rendering the means of living more easily attainable, can lay the axe to the root of that quantum which remains of national difficulty and distress.

Throughout the country, and among the classes of property, from the highest to the lowest degree,

the custom of private brewing has been immemorial and nearly universal. It is a favourite topic of the present day, to warrant something similar of the country labourers of former and better times. So far as my recollection extends, I have never known such a custom to be general, but prevailing only, in any considerable degree, in the rich counties, and even in those, confined to the best paid and most provident labourers. In the poor counties, and where wages are low, very little ability subsisted among the labourers to supply themselves with home-brewed beer, upwards of threescore years ago. Within my knowledge, it was a thing constantly attempted, and periodically relinquished, from want of funds. Casks could not always be obtained, and the drink was therefore to be used from the tubs, which, in due time, from defect of the means to procure malt, stood rotting without doors. Granting, indeed, a bold push to be made by virtue of some saving or *God-send*, how could a wretched family contrive to brew, upon such wages as five or six shillings per week, the then standard in the Western counties? Certainly, the practice has greatly diminished since, and its opposite, of purchasing beer, greatly increased, to a lamentable deterioration of the morals of the country labourers, whose advance in the scale of society is devoutly to be wished, and to whom the custom of brewing their own beer is peculiarly appropriate; and with respect to their health and well-doing, indispensable.

The present topic of the comforts of the labouring classes naturally introduces the modern, but

now universal, habit of drinking TEA. The late Mr. Arthur Young, with perhaps a less profound attention than he usually bestowed on his subjects, took every opportunity of expressing his unwillingness to allow to the sons and daughters of labour their share in this common privilege; and Mr. Young, I observe, has successors in this opinion. Tea-making, it is objected, is a great consumer of time, and the beverage itself, a debilitant, rendering those who use it, delicate and unfit for labour. It may be replied, that the most expeditious meals, necessarily, consume time; that, in order to make the too often bitter draught of labour go down, (more especially when so much of the *sic vos non vobis* is intermingled with it,) and so insure a degree of cheerfulness and good-will, some portion of respite and relaxation is necessary. Tea is certainly a mere diluent and detergent, altogether devoid o the nutritive properties of beer; it is, at the same time, a cooling, sedative, and refreshing drink, extremely agreeable and cleansing to the stomachs of those who are fed with the most ordinary, the hardest, and coarsest provisions. As a relaxant, it often proves equally beneficial as agreeable to the robust, and to those of the rigid fibre. Nor have I ever known an able labourer, or any well-fed labourer, injured in his strength by the custom of drinking tea. A partiality for this Asiatic herb has long since taken possession of the whole people of this country; and, I must confess, I see no reason for attempting to divest the great majority of their share of a common right, which really ought, in this com-

mercial country, to be within the compass of their means. Why tea should be three times dearer in this than in other trading countries, I see no legitimate reason; unless it be such to favour a monopoly, contemporaneously with which, but not through which, British commerce has flourished. This is a subject, however, on which writers may spare their labour. The people *will not* leave off tea-drinking.

Another bootless topic is the declamation against the potatoe-root, beyond question the most valuable of all edible roots, and the only efficient substitute for bread. Men will declaim—Preserve me from a potatoe-fed population! Amen—and from a bread and water-fed population likewise. But either bread or potatoes, indifferently, substantiated with a *quantum sufficit* of flesh meat, will amply and sufficiently feed any population. In the mean time, the qualities of the potatoe have been greatly overrated by our modern chemical theorists.

In towns, it cannot be rationally expected that the PRIVATE BREWERY should prevail in an equal degree with the country; least of all in the metropolis, including people of every rank. There is neither sufficient room, nor leisure, nor necessity, for the practice. There are, furthermore, greater incitements in towns for the purchase of beer, in the density of society, the proximity of numbers of public-houses, and the superior quality of the beer to be obtained. These reasons must always operate against private brewing in the metropolis, and the populous manufacturing districts of the country.

The periods of war and scarcity, when the price

of beer has advanced, and its quality proportionally receded, always offer some, but a temporary counteraction to the custom of purchasing. Citizens then, including those labourers who can possibly eke out the room and the money, begin brewing. The system continues, so long as the funds can be found, or the home-brewed maggot survives or continues to bite. Anon comes the change. The poor in towns, as well as in the country, find solid reasons, already stated, for giving up brewing. Nor are the people of property behind-hand; they have no leisure generally to pay a personal attention, but must trust to a labouring brewer, who now and then spoils them a stock of beer. The enthusiasm for brewing their own beer now cools, wearisomeness and disgust succeed; and they find that beer may be purchased, at a much dearer rate indeed, comparatively no object to them, more agreeable to their palate, without the trouble and fuss of brewing at home. Away then, go mash-tun and coolers, casks and all, and the poor copper is left in pristine solitude!

Among the OBSTACLES to private brewing, the most redoubtable of all, certainly, must not be over-looked. It is the universal predilection, both of the natives and foreigners who visit this country, for London PORTER, which no private family, so far as I have heard, have succeeded in brewing to perfection. It is within my memory, I believe, that drinking porter became universal; but the old "butt beer" has assumed the name of porter, perhaps a century past. TWO-PENNY and ROMAN PURL have had their day. KEEPING small beer was formerly in phrase and in use at London,

where fine ales have immemorially been brewed, and where may be also found the ales of every brewing district of the country.

Act of Parliament, or TABLE ALE, with intermediate beer, have lately come into vogue, but they all give place, in public estimation and consumption, to porter. This favourite beverage, however, is condemned by the physicians, as productive of bilious and liver complaints, and injurious to the female complexion. Porter is a compound drink, in which, indeed, brown or high-dried malt was formerly the principal ingredient, but in aid of which, certain other ingredients far less costly, but not absolutely noxious, seem, in these days, to be deemed allowable, or rather essential, in the manufacture of this *cerevisia sui generis*, or peculiar beer. It is said to have been, for some years, brewed chiefly from pale malt, the colour being imparted by a certain quantity of "patent malt," roasted like coffee, until black. Brewing beer from barley, or other raw unmalted grain, ground to meal, and infused for two or three hours in the liquor at a heat of about 150 degrees, is said to be in practice. I should apprehend that good keeping beer cannot be so produced. Other ingredients, which have been too often used, are proscribed by law, under very heavy penalties.

It is curious to read in the treatise by Ellis of Gaddesden, the recipe for brewing porter. He tells us, the brewers in his time commonly drew a barrel and a firkin, or a hogshead of porter from a quarter of brown malt; which porter they sold for twenty-three shillings per barrel. From my own personal

knowledge, a London brewer, half a century since, drew from a quarter of the best Herts white malt, only two barrels of fine ale, which he sold to publicans at forty shillings, and to private houses at two guineas per barrel. It was perhaps a singular instance, he used no adulteration whatever. The immense lengths which have been drawn since, both in the porter and pale beer brewery, are an abundant proof of the virtue of taxation, in improving the art, by exciting the chemical skill of the brewer. A late observation of Mr. Wodehouse, in parliament, is the best commentary on this: the honourable gentleman observed that, notwithstanding the vast increase of population, the consumption of malt has not increased, during upwards of the last thirty years: and the patriotic Lord Teynham, at a late meeting in London on the malt and beer duties, those disgraces to our national finance, repeated the following extraordinary fact; at the present moment there is a less consumption of malt, by two-thirds, than there was in 1773! Mr. Maberly's motion for changing the duties merits the most serious attention from every Englishman who values his own, or the interests of his country.

On the above topic, the decrease in the consumption of malt, notwithstanding the immensely increased consumption of beer, the following astounding and discouraging facts are given on the authority of Mr. R. Montgomery Martin.—"The tax on Malt was first imposed in England by the 7th money act, William III. first Parliament, section 2, at the rate of 6*d.* per bushel, or 4*s.* per quarter. The duty stole on from time to time, until, in 1787, it reached to 10*s.* 6*d.* per

quarter; in 1791 to 12*s.* 6*d.*; in 1802 to 18*s.* 8*d.*, and 1804 to 38*s.* 8*d.*, at which monstrous rate it continued until 1817. The consequences are thus seen at intervals of a century.

Malt consumed in England and Wales at two periods.

	quarters.
Annual consumption, average of 10 years, ending 1723....	3,542,000
Ditto, ditto, ending 1823....	3,182,776
Decreased consumption....	359,224

			galls.
Population, first period,	5,500,000.	Malt per head.....	41
Ditto, second do.	12,000,000.	Ditto.....	16
		Decrease per head	25

"The decrease thus exhibited is very remarkable, and the consequences to the agriculture of the country most disastrous: but let us look to another and more recent period. The following is the official return of the quantity of malt consumed in England, at two periods of eighteen years each:—

	Bushels.	Tax, per bushel.
From 1784 to 1801....	459,640,568.....	1*s.* 0*d.* to 1*s.* 2*d.*
From 1814 to 1831....	392,980,839.....	2*s.* 7*d.* to 4*s.* 4*d.*
	66,659,729	Increase 1*s.* 7*d.* to 3*s.* 2*d.*

"One more illustration will suffice to prove whether the assertion of Sir Henry Parnell is correct, namely, that 'the duty of twenty shillings per quarter (it is 20*s.* 8*d.*) on malt is not one that can be justly objected to as too high.' (The present writer greatly regrets that Sir Henry has risked such an assertion.)

Malt consumed in England.

bushels.		bushels.	
1796..28,142,008	Tax 1*s.* 5¾*d.* per bushel.	1828..25,099,336	Tax 2*s.* 7*d.* per bushel.
1797..30,923,419		1829..30,517,816	
1798..26,963,454		1830..23,428,072	
1799..31,751,645		1831..26,900,903	
117,780,526		105,945,127	

"Thus on the four last years, there was a decrease of nearly twelve million bushels as compared with four years of the last century.

"Scotland exhibits equally disastrous results of the effects of taxation; one return will suffice:—

Scotch consumption of Malt.

	bushels.		tax per bshl.
1802.....	2,014,526.....		0*s.* 7*d.*
1821.....	1,182,208.....		3*s.* 6*d.*
Decreased consumption..	832,381	Increased tax..	2*s.* 11*d.*"

Subsequent years afford similar results.

"Ireland is even worse than Scotland. In 1831, the consumption of malt in Ireland was less than that of 1792 to the extent of 3,129,370 bushels.

"Nor are these the only evils; the tax falls on different places unequally; the quantity of malt consumed by the United Kingdom being in 1811,

	bushels.	net duty.
England....	26,900,903.....	£3,474,699
Scotland....	4,101,946.....	505,637
Ireland	1,959,606.....	251,646
	32,363,455	4,331,996

" England is therefore taxed out of all proportion to the other parts of the United Kingdom; but the inequality does not rest here, for the poorest counties in England, that is, those having the worst or most sandy soil, have to bear the greatest part of the burden, barley being principally grown on those sandy soils, which require considerable outlay.—Now allowing the consumption of malt in the United Kingdom to be 33,000,000 bushels, and giving ten bushels to every hogshead of beer, the quantity of beer which each individual would have, would be little more than *one pint per week!* Were the tax taken off malt, we might safely calculate on the consumption rising to *seven pints a week*, which consuming 231,000,000 bushels of malt annually, would set afloat in *one* ingredient of the beer alone a captial of £39,600,000 annually, at the rate of 4*s.* a bushel for the extra amount of malt consumed, independent of its effects on the health of the people, in weaning them from the use of ardent spirits, contracted in consequence of their beer being so bad and so dear. Indeed it is no exaggeration (as it could be proved by the writer in detail) to say that the total abolition of the tax on malt, would give circulation to a capital of full *fifty millions sterling per annum!* But the *moral* effects resulting from the repeal now advocated, would be incalculably far greater than the *pecuniary*.

" The quantity of *home-made* spirits consumed in the United Kingdom (independent of illicit distillation) is,—for England 8,000,000 gallons; Ireland 9,000,000; Scotland, 6,000,000; total 23,000,000, of gallons. The money laid out by the people in gin and whiskey

alone, during the last twenty years, is computed at £400,000,000! Four-fifths of all the crime committed in the country are under the influence of liquor. During the past year, 32,636 persons were taken into custody for *drunkenness alone*, by the Metropolitan Police, not including assaults or more serious offences, and excluding the suburbs. £5,000,000 poor-rates are owing to gin-drinking. Of 140 inmates of a London workhouse, 105 were brought directly thither by dram drinking, and the remainder traced their misfortunes to the same; and of 495 lunatic patients, 257 lost their reason by drunkenness. What a sea of wickedness is the nation now plunged into!"

I have thus far availed myself of the talents and industry of Mr. Martin, and shall conclude with the following observations. The great majority of the people, which, in the ultimate, must be dominant, have at length become convinced that our immense debts have not been contracted for real objects, or those of necessity and national utility, and that the profligate and grasping expenditure of former administrations, trenching as it yet does on the rights and comforts, and enhancing the distresses of the people, cannot and will not be much longer endured. Indeed, unless some party in the state, endowed with the virtues of real honesty and patriotism, shall assume courage to go the necessary lengths of reform, and reduce within the bounds of reason and true policy our fiscal enormities, even I, advanced as I am in years, may yet live to witness some sudden and violent change in our political system.

Having thus cleared the way, I proceed, addressing

myself particularly to those who already do, or seriously purpose to, brew their own beer: assuring them of the vastly superior salubrity of the pure extract of malt and hops, over the most luscious, stimulating, and palatable compound, however scientifically brewed: with the farther assurance, grounded on all experience, of the nutritious and sanative quality of the pure home-brewed drink, and its real medicinal efficacy in weak cases. Its superior cheapness, during our present state of taxation, needs merely the recital instead of an argument—beer brewed at home will cost the consumer little more, perhaps not so much as half the price of that which is purchased, and yet prove superior to it in good and substantial quality.

Of MALT. This precious article has not, I apprehend, been made, of late years, from any other grain than barley. In former and comparatively untaxed days, malt was currently made from wheat, and oats likewise. The only instance of this kind within my knowledge was of a Mr. Dobson, a maltster at Ipswich, Suffolk, in 1767, who made a considerable quantity of wheat malt, wheat being then at about 28*s*. per quarter. Wheat malt produces a strong-bodied, fine, and high-flavoured liquor; oats, a light, mild, and pleasant beverage. I have heard much commendations of oat-ale, as a summer drink, but have never tasted it.

The QUALITY of malt is not to be determined by the weight, since the heaviest may, in reality, be the worst, as imperfectly made; tough, hard, or steely, and still partaking of the nature of barley. The

kernels of the best malt are thin skinned, plump, and when bitten or bruised, yield throughout a soft, mellow, and sweet-scented flour. A kernel of well-made malt, rubbed till broken against a dry board, will leave a white mark like that made with chalk. The necessity will be easily apprehended, of examining the bulk as well as the sample of malt; and the private brewer, who can make it convenient to accommodate himself with a mill, to grind his own malt, will thereby ease himself of a number of suspicions which, right or wrong, have gone abroad, respecting fraudulent mixtures.

The GOODNESS of a sample of malt is ascertained by biting the kernels, or immersing them (entire uncracked ones) in water, in which they ought to swim, until saturated with the liquid. The SPECIES are four—*white*, *pale*, *amber*, and *brown*. Perhaps white malts are not so much in use as formerly, when a soft, balsamic, almost colourless ale, was in more general request. The colour and qualities of malt depend on the degree of heat and length of time allowed upon the kiln. The pale malts, in course, are those allowed the longest time, the brown or high dried are made with more dispatch, and the amber forms a medium between the two extremes. The slack, or gradually-dried malt, retains most of the substantial quality of the corn, makes the most nutritious beer, and that which may be preserved sound to the longest period. A greater quantity of beer also in proportion may be extracted from it, and it commands the highest price. Brown malt is supposed to make up in spirit what it loses in substance; and with respect to the private

brewery is used by those who prefer that colour and spirit, or the flavour which high-dried malt imparts. Pale and amber malts are used indifferently by private persons. Hertfordshire has been immemorially, and still continues, celebrated for the finest malt, and there is, at present, more malt made at Ware than at any former period. There is no doubt, I believe, of the superior quality, and also cheapness, of wheat malt, at a certain comparative rate with the malt of barley. Such was the opinion of Ellis, as appears from the following quotation:

Ellis was engaged in both the London and country brewery, between the years 1740 (or somewhat earlier) and 1760. In his seventh edition of "The London and Country Brewer," published by Baldwin, in 1759, he avers that no other grain can equal wheat for its virtues as malt; yet to his great surprise, it was neglected, although it had been during three successive years as low in price as three shillings the bushel, at which price it was equal to barley at two shillings, and oats at eighteen-pence the bushel, for malting; and far beyond both for making strong beer; and most particularly for the then famous and nutritious liquor *Mum*, imported from Germany. This writer continues to reason on the virtues of his favourite malt as follows:

"First then, the flour of wheat is much finer than that of barley, and the finer the flour the finer the drink; so also is the bread made of the one and the other, that bears very distant proportions of goodness. The wheat bread eats smooth, mellow, sweet, light, and nourishing; the barley rough, coarse, moist,

heavy, and is scouring: wheat malt also differs much from barley malt, for the former if well made, will return a pleasant, brisk, nourishing, wholesome, ale and beer; while barley malt is apt to make a more heavy, scorbutic, and less nourishing liquor. This wheat-malt has an admirable quality in it, that no other has; and that is, the drink of it will never be *windy*, which is a pernicious quality inherent in most other (malt) liquors, and is very unwholesome in barley and other malt drinks; but this, whether in barrel or bottle, and kept ever so long, will always be free from that mischievous effect. The goodness of this malt discovers itself in making more potent ale and beer than any other sort can; in short, the ale or beer made with wheat malt is thought by many that have proved it, to be the very best of all liquors."

Ellis gives also a number of cautions on the malting of wheat—particularly, that it may be of good quality, not smutty; as in his time, some of the brewers bought that inferior kind of malt made from smutty wheat. He allows, however, that the coarse bearded wheat, or rivets, will make malt, but still inferior to that made from the best species. In order to do justice to wheat malt, the wheat must be soaked in good water, and have its due time in the cistern, couch, floor, and kiln. The wheat intended for malt must not be field-grown or mow-burnt; for like barley, with similar defects, it is very apt to rot in the couch. When laid on the kiln to dry, it must be spread thin and have a leisure or moderate fire, otherwise wheat malt cannot be made in perfection. It must spire gradually, and have a slow fire on the kiln, that its

floury parts may be soft and in full body: its fine, spirituous, balsamic qualities will then be preserved, and be communicated to the beer. Should, in the course of the seasons, wheat become again sufficiently cheap, it would surely be desirable to revive this important national experiment; and I call upon my readers of our grand national manufacture, and particularly on our aristocracy in their country residences, and on country residents generally, to bear it in mind, as an object well worth their recollection and attention.

The HOP, formerly held injurious to health, has long been proved an indispensable ingredient for the preservation of beer, and equally conducive to its salubrity. The qualities of the hop, that is to say, of that part of the plant which is used, are opening, diuretic, and discutient, and held by the old physicians to be effective in removing obstructions in the liver, kidneys, and lower bowels. The ancient notion has, indeed, been fully and practically disproved, that the hop in beer renders it productive of *nephritic* complaints (gravel and stone). In all probability, such effect ought rather to be attributed to the *hardness* or impurity of the water used in brewing; since, with all due respect for modern medical science, the incontestable fact remains, that in those districts where beer from necessity is generally brewed with well, or hard water, the inhabitants are most subject to the above diseases.

Formerly, in dear seasons, many substitutes have been used for the hop, or in addition to it, wormwood, sweet flag *(calamus aromaticus)*, horehound, broom, and various bitter herbs. The hop, or husk

of the plant, must be pure and unmixed with any other of its parts. Its moist, adhesive feel, and aromatic scent, are well known. It requires practical skill to judge of the age, colour, and condition of the hop. The brown colour is not always an indication of either age or bad condition; it is the natural colour of some, as the pale green is of others; for example, of the celebrated Farnham hop. The colour and qualities vary with soil and situation; clay lands producing the strongest and harshest hops. Nevertheless, a brown colour, with a dry and harsh feel, and hardness of the seed, indicate either age, or the deteriorating effects of a bad season.

OLD HOPS will doubtless preserve beer; and, in fact, good-conditioned old ones are to be preferred to new which are bad; but, generally, new hops, or those of an immediately preceding season, are far the most valuable to a consumer, age necessarily despoiling the hop of great part of those volatile, aromatic, and peculiar qualities for which it is used, and perhaps the whole of that material part, its *farina*. In fact, age works a considerable change in the properties of this article. The soil being proper, the cultivation of the hop, to the extent of family consumption, may answer the purpose of a country resident devoted to rural pursuits.

The WATER best adapted to the purpose of brewing, is the *soft*, or that which will most freely and easily lather with soap; it will not only render the most pleasant, wholesome, and best-keeping beer, but also a considerably greater quantity from an equal measure of malt. It must be understood, nevertheless, that

the water be pure, or as free as possible from injurious impregnations. Thus rain, river, or pond water, may be soft intrinsically, yet contain various impure mixtures; the rain, from the building over which it descends; the pond, from mud and the slime of fish, perhaps often disturbed by the feet of cattle; and the river water, from heavy rains, floods, or other causes. The quality of the water generally depends on the nature of the soil, whence well and spring water, notwithstanding their common character of hardness, may be soft and well adapted to the present purposes, on a chalky soil.

It results that they who brew, cannot always command the quality of their water, but only the necessary precautions in that respect; and that pre-supposing a due degree of skill, those districts, in which the softest and best water is found, will always produce the best beer. The soundness and goodness of the beer will much depend on the season and weather in which it is brewed, and the coolness, dryness, and aptitude of the place in which it is kept. Spring and Autumn, September, October, and March, are the well-known months for brewing; but drinkable, though not keeping beer, may be made throughout all seasons, according to the necessity of the case, both of the common and private brewers; by the latter, in the smallest quantities which his means and situation may require.

The beers of the present time, for fashion directs and regulates every thing, are PORTER, BROWN STOUT, and beer or ale, varying in colour, from the almost colourless to the high amber. The porter,

as has been already observed, is an acknowledged compound, or it would not answer to its name; thence, granting the adscititious ingredients to be not absolutely noxious, no *stigma* can attach to the brewer. The pale beer brewer cannot boast of such advantage, nor of acting *bonâ fide*, whilst boasting that his commodity is the genuine product of malt and hops. I speak generally, craving pardon of the exceptions, wherever they may be, since it has so seldom been my fortune, in a great number of years, to taste unadulterated purchased ale, whether brewed in the Metropolis, or in the brewing districts of the Country. In these ales, at present, the chief articles of adulteration, most of which my well-practised palate can discover, are seeds, sugar, and salt, perhaps bay salt, coriander seeds, Spanish juice, hartshorn shavings. *Coculus Indicus*, (Indian berry,) a most intoxicating and deleterious drug, the flavour of which I well know, was formerly much in use; and, if that be not the case at present, it is difficult to conceive why such large quantities of that drug should be annually imported, since its use in medicine is almost or entirely unknown. The brewers, however, find a sufficient apology in the pressure of taxation, and the vitiated taste of the public.

I was never aware, until informed last year, that animal matter entered into the composition of porter. It was stated to me, that the London brewers boil in it the coarse pieces of lean beef. The idea is said to have originated with a working brewer, who first conceived it from the old story of the black man boiled to death in a copper of porter, which brew-

ing, according to the refined taste of the customers, was superior to any they had ever before drunk. This origin may be properly deemed a *hoax*.

Dr. Paris, in his Treatise on Diet, seems disposed to bestow compliments on the brewers, of which, in truth, they stand in no great need. He makes the sturdy assertion, that—"it is, at all events, certain, that such adulterations are not carried on in the cauldrons of the brewers." Why then, "the carryings on" are pursued in the cellars of the publicans, as various late prosecutions and convictions have proved beyond question, in the seizure of the adulterating articles. This seems to give the semblance of truth to the present opinion, that the art and practice of *improving* the national drink has conveniently changed hands: which, however, can only be partially true, since many of the articles of *improvement* require mixing and boiling with the worts. The Doctor gives the usual reason for the substitution of the term *porter* for brown stout, or "entire butt beer," which took place about the year 1730, namely, as a "hearty and nourishing liquor, very suitable for porters." Ellis, who was probably in the London brewery at that period, or soon after, is silent on this topic. In later years, and at present, there seems to have been a considerable difference of quality between porter and stout.

The articles of adulteration used in the Public Brewery have been occasionally noted in these pages; the following is a summary or collection of the chief of them: common salt, bay salt, salt of tartar, sugar, honey, treacle, linseed, cassia, hartshorn shavings,

essentia bina (sugar boiled to a thick syrup), capsicum, ginger, colouring (boiled sugar), coriander seed, sundries (a composition by the brewers' druggists), grains of paradise, green copperas, slacked lime, tobacco, coculus Indicus, opium, and *nux vomica*. The detection of these articles has arisen from certain prosecutions.

Various substitutes for, or assistants to, the HOPS. —Wormwood, sweet flag *(calamus aromaticus)*, horehound, green broom, marsh trefoil, buckbean, socotrine aloes, quassia, the Indian bitter bean. The bitter of the hop is said ultimately to become acid, and that keeping beer may be brewed without hops or any bitter; as a successful instance, the famous beer of *Lorraine*, in France, two years old. On this point I have no experience. Assuredly, to produce the usual bitter in porter, a very considerable portion of hop would be required.

It has been stated, that porter may be brewed independently of the aid of any materially noxious ingredients; also, that *it will not suit the taste of the public without certain additions and aids to the malt and hops.*—Why, then, do not the porter brewers come forward candidly, and petition the fiscal department for permission to make use of the needful additional articles? The public taste surely ought to be consulted and gratified, when that can be accomplished without injurious effects, or detriment to the revenue. The adulteration of ales, town and country, is infinitely more injurious to the public health, and ought to be visited by the most severe and unmitigated penalties: lamentable it is that it

nevertheless has long had, and still enjoys, the public preference. A palpable instance of this I personally witnessed, more than half a century since. The brewer of genuine ale, whom I have already cited, had a publican in his vicinity, a man of property, who had a constant great draught for ale. The brewer, in course, solicited his neighbour's custom, and the favour was promptly granted, on condition that the commodity should suit the taste of his customers. A trial cask of ale was forthwith sent, and a supper for a few friends ordered at the house by the brewer. The result in the end was, that not one of the publican's customers would drink the pure ale, and thence he kindly agreed to use it in his own family. I tasted, but did not swallow, the favourite ale, and a more damnable composition never entered my lips. Salt and sweet, bitter and *bite*, or stimulus to intoxication, seemed to contend for the mastery in this potent drug-broth! On the whole, it was a rare infusion of lollipop for grown children. As a modern instance—several years past, I observed in a daily paper, the oath of a brewer before the Lord Mayor, to the genuineness of his ale. In consequence, I immediately ordered a cask, and could discover in the beer no symptom of adulteration. I have heard nothing of this brewer since, and do not apprehend that his plan has succeeded with the public.

A singular action at law has lately been brought by a Burton ale brewer, against the publishers of the Library Economical Pamphlets, for a statement in one of them on the Brewery, of the adulteration practised in the manufacture of Burton ale. An affidavit

was made in court of that beer's entire purity, as the genuine and exclusive produce of malt, hops, and water. Now, although I have lived too long in the world to give unhesitating credit to oaths of business, whether of a jury, military, clerical, customs, or excise, I will allow of exceptions to general rules, and suppose this oath correct. Granting thus much, I think the prosecutor would have acted a more modest and discreet part, by simply appealing to the public in defence of his commodity, than to the rigour of the law, considering the known and proved universality of the practice of adulteration. This candour of mine, however, shall not prevent me from stating what I know in the premises. Years ago, I always understood that Burton ale, Ringwood beer, and others, were highly drugged; and, as I had not tasted Burton ale lately, I repaired to an hotel and coffee-house which professed to sell the finest and purest drink of that name. On tasting, I immediately found it most amply improved by the brewer's druggist, and thence in high condition to win the public favour. It contained salt to insure thirst, sugar in plenty to gratify the sweet tooth, and of g. p. and probably coriander a full q. s. to give it a stirring spirit. I am far from making the assertion that the ale was brewed by the party above alluded to, or even that it was born at Burton, though christened BURTON ale.

I have attended to the *dénouement* in the public prints of that notable suit, Rex v. Baldwin and Cradock, so felicitously and facetiously convenient to both parties. The following passage in Mr. Brougham's speech could scarcely fail of affording

me a share in the general satisfaction—"The learned person who had written the treatise had himself been a practical brewer twenty years, and had been misled by a circumstance which was sufficient to mislead any one—he found it impossible to make ale of the quality of Burton ale, without the aid of certain saline ingredients, gypsum, for instance, the water at Burton flowing over a rock of that substance." This gypsumized rock, then, has proved a rock of mutual defence and security; and the Rock of Burton! ought to become an established toast with all brewers of the pure and genuine ingredients of "malt, hops, and water," one only saline addition. Should I live to see a seventh edition of my little book, I shall not fail to revise and palate the new editions of Burton ale. I think I have remarked that the ale of the retail or shop-brewers, which I have tasted, has been the least adulterated; however, if I may be guided by a single instance, they also have entered upon the march of improvement. A bill of one recently embarked, with high pretensions to genuineness and purity, being put into my hands, I sent for a sample bottle. The beer proved as *saline* and tropically sweet, and as heating and stimulant to the stomach, as bay or common salt, sugar and grains of paradise could render it. Now, after all my diatribes on this subject, gentle readers, who can blame the brewers, as brewing, not for themselves, but their customers? seeing that the English people have an inveterate aversion to genuine beer, of which they probably, in the great majority, have not been drinkers during the hundred years last past. In justice, I am bound to acknowledge, that I have

lately tasted ale in a London public-house, in which my ancient and well-travelled taste could discover no trace of adulteration; a piece of good fortune that I had scarcely ever met with, but in the houses served by that brewer whom I have referred to in these pages.

Laying open the beer trade by our ministers, who certainly appear desirous, and are sedulous in making all the reforms *within their power*, will, no doubt, have a partial good effect; indeed, will do all which taxation and public taste will allow. A riddance of the abominable and degrading licensing system, against passing the act for which the late Mr. Sheridan made a noble oration, is, in itself, no trifling advantage obtained. Indeed the restrictions generally upon publicans are an insult to the citizens of a free state, besides being perfectly ludicrous. There is a pious party among us, who have not yet discovered, in the wisdom of antiquity, the folly and danger of "governing too much." Now, should these sage politicians be ambitious of a farther advance in their favourite cause, they will grant me leave to propose an additional restraint, to wit, that no publican shall kiss his wife on Sunday, under the penalty of eighteen-pence, of good and lawful money of these realms, for every kiss on that day given. A policeman may be stationed on guard.

Much has been advanced on the heavy losses which must fall on the property of publicans, in consequence of the new beer bill; but the complainants, in the mean time, ought not to be unmindful of the long and heavy losses sustained by the public from the mono-

poly: all monopolists, indeed, not forgetting the high and mighty company of the East, ought to be aware that the days or years of their exclusive advantages are numbered, that their period must sooner or later arrive; that, probably, a higher interest may require the gordian knot to be cut, and that they must look for their remuneration in their profits already acquired.

Thus a most unwholesome and sickening composition beverage is preferred by a discerning and tasteful public, to genuine and salubrious ale, which no common brewer is encouraged or expected to manufacture. The retail brewers, under the new act, to the extent that I have tasted their commodity, appear to use no noxious ingredients in their ale, salt and sugar, with ginger, perhaps, being their only aids. Their intermediate beer is pleasant and wholesome. But it is asserted, this new scheme is already on the decline. The newspapers of 1828 reported the culture, in Battersea-fields, of two acres of the *lolium temulentum,* bearded darnel, supposed to be for the use of the brewers, perhaps as a cheaper substitute for the Indian berry. Darnel has a stupifying, inebriating, and most dangerous property.

Having last year purchased a small quantity of celebrated Scotch ale, as a specimen, I accidentally drank from the bottom of a bottle which had been nearly emptied the preceding day. Almost immediately I felt vertiginous symptoms, afterwards *nausea* and obstruction in the stomach. These symptoms continued some time, and I was about to chew some

rhubarb, when much eructation, and drinking a small quantity of water, relieved me. Doubtless my safety is attributable to the smallness of the quantity of the *doctor* which I swallowed. This beer was finely brewed, alive, with a fine head, but it heated and annoyed the stomach, and palled the appetite; in short, was quite the antipodes to the genuine and generous extract of malt and hops, for which unfortunately the great and paramount majority have no partiality. The *Kennet* ale, a favourite in London, would indeed merit high encomium, did it receive no *useful* additions in the brewing. The *xx* ale, as the manufacturer styles it, a *London-brewed* Scotch ale, is most skilfully brewed, and barring g. p. sugar, &c. would be among the most vinous, smoothest, and finest ales in Britain.

Although a beer, as well as wine-bibber, but within the bounds of healthful moderation, since the date of years of discretion, it is somewhat strange that I do not recollect to have tasted *stout* until late years, when it was strongly recommended to me by a gentleman of the law, as the most salubrious of beers. I have since drank bottled stout regularly, *vicissim*, with ales, and find it fully deserving the character this gentleman had given of it. It is a good evening drink, and its effects on my stomach are similar to those produced by Port wine. I suppose it to be the brown stout, or butt beer, of former days. It sits very light in the head and stomach, and nothing stupifying results from a moderate quantity.

BROWN STOUT is an old article in the common brewery, and mentioned by the once noted brewer,

the rural economist, Ellis, of Little Gaddesden, Herts. This conscientious writer, in despite of the classical rule, *nec Deus intersit nisi,* invokes the assistance of the Almighty, in his attempt to purify the morals of wicked brewers—whereas I content myself with an invocation of the powers below. Riding through Little Gaddesden some forty years bygone, I inquired respecting Ellis of an aged person, and others of the village, describing Ellis's profession and pursuits; but none of them had ever heard of such a man; so that it would seem, neither an author nor a prophet hath honour or remembrance in his own country. *Sic transit gloriâ* of us scribblers on good and bad beer.

The attachment, according to Ellis, even in his cheap days, both of brewers and the public, to *improved* beer, was in existence, if not in an equal degree with that of the present happy days of all-improving taxation. The brewers then used, as they had done long before—*coculus Indicus,* g. p. (grains of paradise), black malts (treacle), coarse sugar, salt, coriander seed, &c. Ale, as I have lately tasted it, well seasoned with salt, sweetened with sugar and fined with hot seeds, may be a comfortable and exciting drink, yet not so well calculated to agree with and strengthen, as gradually to debilitate the stomach. Ellis says that the Indian berry has the same quality as the deadly nightshade of this country; also that one pound of coriander seeds, then sold for tenpence, being boiled in the wort, will prove equal in strength to one bushel of malt. It is certainly one of the least hurtful articles, but far

enough from possessing such a quantum of substance. He deems the practice, then much in use, of beating in the yeast during a long time, calculated to render the drink stupifying and unwholesome. He complains of the brewers in his time for adulterating their beer, malt being only twenty shillings per quarter, and hops in proportion; they, however, drew only a hogshead from a quarter of malt for their porter and entire butt beer; whereas, I believe, our modern brewers seldom draw so little as three or four barrels. The gout and rheumatism, it seems, prevailed much among the contemporary publicans and beer-tippling sinners, for which diseases I transcribe his almost infallible remedy. One ounce of gum guiacum in powder, infused in a bottle of rum, half a gill to be taken on going to bed, as a perspirant; to be repeated if needful.

Ellis gives a variety of substitutes for malt, in brewing beer, none of which are worth the paper on which they are printed. There is no known substitute for malt and hops; all are equally deceptive as to the real and efficient qualities of beer; nor can they be at all profitable, but as making a virtue of necessity. These spurious beers have ever been much in fashion on paper, if not in real use; and of late, we have had a new edition, which first appeared in "Ruffy's Farmers' Journal," (since continued in old Bell's Weekly Messenger,) that justly popular depository of all things curious, as well as useful, in rural economy, and of ample miscellaneous information, British and foreign, in which I have had the honour, during a number of years past, of occasionally

contributing a column. The new edition to which I refer, is of beer from the *mangold,* or beet, which a newspaper writer, in proper character, warrants to be "as good as any ale." It may, for aught I know, make a pleasant diluting and diuretic drink for the dog-days. Thus it has been asserted by the scientific, that the home-made arrow-root, from potatoes, is equal in substance and nutritive quality to the genuine foreign, and that the quality of potato flour is equal to that of wheat. The above writer's recipe is as follows:—Take the liquor of 150lbs. of the roots, previously boiled, bruised, and pressed; add one pound of hops; the infusion to remain all night, and to be reduced by a saccharometer, to the strength of 28lbs. of saccharine matter in 36 gallons. Then boil the liquor one hour, and cool as soon as possible to 70 degrees Fahr. Add one pound of good yeast, to be beaten in after the liquor has stood 24 hours; to be beaten in again after 12 hours. The yeast then to be skimmed off, and in about 12 hours more the beer to be tunned. When working has ceased, stir into the cask a handful of the cold reserved hops, and in a few hours bung down. The produce, 16 gallons of ale, apparently very strong, of a very fine flavour, *and equal to any malt ale.* The whole expense about seven shillings, or five pence halfpenny per gallon.

To come to the operative, and concluding part of the subject; the first step is, obviously, to provide the requisite UTENSILS,—a COPPER, fixed or moveable, of the content or size adapted to the quantity to be brewed, to which a cock is a great conveni-

ence. A MASH-TUB, with spigot, faucit, and grating, or partial false bottom. COOLERS, a GALLON measure, a HAIR SIEVE of proper size, HAND BOWLS, a PIGGIN, or bowl with an upright handle, PAILS, a FUNNEL, MASHING-STICK, CASKS; and to complete the list, a THERMOMETER, for those who desire to be scientifically accurate, in taking the heat of their liquor.

With respect to a MEASURE, the piggin may be made to contain exactly a gallon, or any desired quantity. The present prices of these will be hereafter given, but from the reduced price of timber, brewing utensils, perhaps, do not cost so much as in former days. It is the interest of those housekeepers who brew constantly, to purchase utensils of the best and most solid materials; not only on the consideration that they are bargaining for those which will serve them through life, but because the smoothness and hardness of the wood contributes to the purity of their beer; as soft and porous wood imbibes all kinds of impurities, and after much use can scarcely be made clean. As to those to whom it is an object to lay out as little money as possible, in the purchase of these articles, and those who brew very small quantities, they may suit themselves at a very small expense, more especially in the metropolis. Used wine casks are extremely proper, and may be cut down and adapted to every purpose of brewing. The OAK, or stick to stir up the mash, may be either purchased at the cooper's, or made at home, being merely a long flat staff, having three cross sticks, one above the other, at the lower ends.

Beer, or the WINE OF MALTED GRAIN, is made by fermenting a solution and decoction of the saccharine matter, or sugar of malt, and impregnating it with the essential oil and bitter quality of the hop, in order to restrict the beer to the requisite vinous fermentation, and prevent its advance to the acetous or acid. That the saccharine matter of the malt may be extracted clear of the farinaceous, the temperature or heat of the water must not be too high, or even at a scalding heat; otherwise a due fermentation will be prevented, and the beer rendered thick and unwholesome. Beers that are dense, mucilaginous, and muddy, from being unskilfully brewed, and imperfectly fermented, sit heavily, and are indigestible by weak stomachs, in which they induce the acid fermentation and its consequences. On this account, the beer of common brewers, as being more carefully and thoroughly fermented than the ordinary home-brewed, has generally the advantage with respect to lightness and facility of digestion. These few remarks on the important subject of fermentation, are intended as prefatory to an account of the following NOVEL, or revived PLAN of brewing, in which, indeed, time and labour may be saved, but I apprehend not advantageously; the experiment, however, may be easily made.

It is recommended to remove the beer, hops and all, immediately from the copper, and, as I understood, *hot* as it *may be*, to the casks, which are left open to produce the spontaneous fermentation, no yeast being used. This, it is said, will begin in four or five days, when the beer shall have become

quite cold; the hops will then rise and work out of the cask. It is further observed that, by this method, the beer will be improved in strength, and the flavour of the hop rendered finer in consequence of the gradual evaporation of the steam. But the obvious risk is, of an imperfect beer from a defective fermentation; and such is the opinion of the brewer of a great London house, whom I have consulted.

Another LATE PLAN, the idea of which was conceived many years since, and which appears of more rational and probable use, is confining the gas or steam of the beer whilst in the working tun, thereby preventing the evaporation of too great a portion of the spirit and virtue of the malt and hops. For this purpose an apparatus has been lately invented, and is on trial at one or two of the great brew-houses. No doubt but the same may be had on a small scale, for private use. To prevent evaporation as much as possible, seems at present a prevailing idea. Further, a COMPENDIOUS MODE of brewing has been lately advertised, with a machine or moveable iron boiler, which may be placed in a chimney or any convenient situation. This is indeed an old housewife's practice reduced to a system, and furnished with apparatus.

The utensils, malt and hops, being provided, and the brew-house, or place for brewing, being made ready for their reception, the next object, and one of prime consequence, is to have the utensils in the CLEANEST possible state, the casks more particularly; and they must also be strictly attended to ever afterwards; for the least taint in the casks, or impurity

called *foxing* in the other utensils, will be communicated to the beer, and render it disagreeable to the palate and stomach, or even totally useless. NEW CASKS will require some time for cleansing and seasoning, and, perhaps, dependent on the nature of the wood, some will always communicate to the beer a slight taste of wood, on their first using. If the malt be new, after grinding it should be exposed to the air, on A DRY FLOOR, two days previously to its being used; if old, half the time may suffice. Brown malt requires a longer, perhaps double the time. MALT should be only crushed or broken, not reduced to flour by the mill, which renders the beer turbid.

To speak in this place particularly of the MASH-TUB—it is usually, and indeed most conveniently, made with a SPIGOT externally, near the bottom, to run off the worts into the tubs; or, in some parts of the country, they make a hole in the centre of the bottom, thrusting through a STAFF, fitting the hole, from which to let out the worts, the staff being of sufficient length above the tub, in order to being laid hold of and managed. The thing, however, being troublesome, is now very seldom used. The wooden grating has superseded the old basket, to keep back grains and refuse, and to run the worts off fine. The entire false bottom is consequently disused. The COPPER being filled, and every necessary preparation made, over night, let the brewer commence his operations EARLY IN THE MORNING, that his worts may be cooled in good time, and if possible set to work in the afternoon.

The FERMENTATION may continue two days, ac-

cording to the state of the weather. In a family, where a considerable quantity of beer is required, and the utensils may not be of sufficient content to brew the whole at once, it is best to take the advantage of good weather, and make immediately successive brewings. Always be careful to boil *liquor* enough, and it is perhaps the best rule to boil double the quantity of the beer intended to be brewed. It is to be observed, that *liquor* used in the brew-house is the proper customary name for water; and that, by ancient usage, the mention in the brew-house of the word water must be accompanied by the forfeiture of a *tester*.

The PROCESS. In middling families, where they have room, and generally employ a brewer, five bushels of malt is a usual quantity. We will, however, accommodate our rules to half that quantity, or two bushels and a half, from which we propose to draw 22½ gallons of good ale, and 13½ gallons of small beer. The gauge of the copper should be 18 gallons, from which indeed, with contrivance, three bushels may be brewed. The mash-tub placed conveniently near the copper, in proportion, should hold 40 gallons, the grating before the spigot-hole of which should be fixed securely, lest it be moved in stirring the mash. Two or three COOLERS are necessary, but three most convenient for expedition; their shallow form is well known, and they should hold from 12 to 25 gallons each. The mash-tub must be placed on its stand to admit a cooler under the spigot.

The COPPER having been filled with *liquor*, and boiling, (all scum and impurity removed from its sur-

face) put the contents, 18 gallons, into the mash-tub, and cover it close with sacks, or any other convenient covering; fill the copper again immediately, lest the bottom should burn, keeping a strict account of the quantity of liquor (water) used, as on this point depends the accuracy as to the quantity of the beer to be brewed; and it must be noted, the absorption by the grains, and evaporation by boiling and fermenting of the worts and other wastes, will amount, in the average, to about three out of every eight gallons, or generally to a quantity between one third and one half. This, and the proper heat of the liquor for mashing, are material points.

The old, indeed the now common method of determining the degree of temperature, or heat, is by the rule of LOOKING GLASS or FINGER, thus: the boiling water in the mash-tub having stood a sufficient time to cool, and the steam having evaporated, the face will be seen in it, as in a mirror; it is then at the proper degree of heat for the reception of the malt; or, when the operator can just endure his finger in it, and withdraw the finger without being scalded. It is practice only which can assure accuracy in these rules, under which I have drank as good beer as ever was brewed.

But the use of the THERMOMETER will, no doubt, be more certain, which instrument is to be managed as follows:—tie a line to it at the top, and let it down into the liquid, the temperature of which you desire to measure; it must remain a minute or two, then raise the stem above the liquid, to observe the de-

grees at which the mercury stands in the tube, without drawing the bulb itself out of the liquid into the air, which would cool the mercury, and give a lower than the temperature required. For the first mashing 170 degrees is the usual rule. Should the heat be greater than that, or boiling, the malt, as it is phrased, would be *set*, and made into a paste; on the other hand, if a lower than the proper heat be used, the substance of the malt would be but partially dissolved and extracted; on the whole, the liquor should be taken as high as possible, without scalding, and the worts should be boiled briskly.

In order to ascertain readily the QUANTITY of water in the mash-tub, the following method is in use. Having measured the quantity of one brewing, make a NOTCH in the mashing stick, or a mark within-side the tub, of the height the water stands at in each mashing, and the quantity being that which you require, it will be necessary at a future mashing of the same quantity, merely to run on as much water as will reach the MARK.

The following rule for the same purpose, I have learned lately: "Take a small lath of wood for each vessel (mash-tub or cooler), and, placing the vessel on an even surface, pour in two gallons of water; when this has settled, insert the lath, and mark with a notch the point to which the water rises. Pour on two gallons more, and again notch the stick, so proceeding till the tub or cooler be full. Repeating this on each vessel, and marking on its proper stick

the vessel to which it belongs, the quantity in each vessel may be easily ascertained by dipping in the stick."

The LIQUOR in the mash-tub having cooled to the proper degree, or been reduced, if necessary, by the addition of cold, pour the malt upon it gradually, and let it be stirred briskly, during eight or ten minutes, to prevent its balling, or sinking in lumps, which, it is said, will have some influence in causing the beer to turn sour. COVER up closely, and leave the mash-tub undisturbed two or two hours and a half (standing too long on the grains might sour the worts); then draw off from the spigot, into the sweet-wort tub or cooler, having previously racked off and returned several gallons of the wort until it run fine; afterwards draw the whole off clear of the grains. About nine or ten gallons will run off, allowing, as has been stated, for the absorption of the malt, which will be from three to five gallons of water per bushel. When the copper is too small, cold water will at once reduce the temperature and increase the quantity to the required amount.

The SECOND MASH. The mash-tub being clear, the spigot fast, and the second copper of water boiling, reduce its temperature to 160 degrees (by thermometer or common rule as before), or ten degrees lower than for the first mash, and pour into the mash-tub 16 gallons, stirring as before. The grains cannot absorb so much as at first. COVER, and leave an hour and a half, then draw off. As soon as the wort runs low, it is usual to pour three

or four gallons of warm liquor upon the bottom, being probably about as much as will be wanted, some brewers using cold water. Run the bottom dry. About the quantity of worts required will then be run off.

BOILING THE WORTS. During the running off of the second mash, is the time to put the first wort into the copper. Add the hops after the rate of 1lb. per bushel of malt for keeping beer, or about three quarters of a pound (or sometimes less) per bushel, the drink being for immediate spending. Separate the hops minutely with the fingers, and stir them up sufficiently in the copper. Some persons are curious enough to make a previous infusion of the hops for an hour or two, in boiling water, pouring the infusion into the first wort, and leaving the residue to be boiled in the second. Others boil the hops in a bag, a bag of fresh hops to each ale wort, the used bags serving for the small beer. By this they think to avoid the acrid flavour and quality of the hop, preserving only the pure *aroma*. On that ground, I have lately boiled the hops but half an hour in the ale wort.

It is customary to BOIL the worts an hour, or until they *break*, as the phrase is, which is determined by a basin-full taken out of the copper and cooled, when, if boiled sufficiently, the wort will break, or appear clear, with separate particles or atoms floating on the surface. Some are of the opinion that they profit by boiling their beer much longer, in which I do not agree. Lade from the copper into a cooler, over which the sieve is placed,

returning to the copper the hops from the sieve; replenish the copper with the second wort, and boil and strain into a cooler as before. Pigs will eat the boiled refuse hops with the grains. Having copper and tun room, some prefer mashing the ale wort at once. According to an old rule, a brewing employs SIXTEEN HOURS of time, reckoning to the period of the worts being safe in the coolers, awaiting fermentation.

WORKING THE BEER. As it is an object to cool the worts expeditiously, the more coolers that can be put in requisition, the better. When reduced to blood warmth, the WORTS are fit for the working tun, the office of which, if necessary, may be well performed by the mash-tub, previously well cleaned. With those who use the thermometer, the proper temperature for working is 65 degrees. In very cold weather, wrap CLOTHS around the mash-tub. Stir in the YEAST, the proper quantity of which is, after the rate of six or eight table spoonfuls to thirty gallons of wort, in the brewing season. In summer weather, little more than half the quantity may suffice. The beer will begin to ferment sooner or later, as the weather may be, and the fermentation may be completed in twenty-four hours, or it may require nearly double that time.

In cold weather, when the head rises slow and thin, it is usual to stir up the beer once or twice; but the practice of beating in the yeast, and impregnating the drink with its particles, does not tend to rendering it wholesome, or to its sitting easy on the stomach. The beer being COLD at the end of

twenty-four hours, skim off the yeast for use, or, should the beer continue to ferment, skim again before cleansing. The fermentation being strong, the head of yeast may be removed in twelve or fourteen hours. An old and practical writer says, "If beer be not sufficiently worked, it cannot clear itself; if too much, it gets weak and soon sours." The factitious yeasts have not hitherto succeeded, either with the brewers or bakers.

The next process, CLEANSING, or putting the beer, now nearly complete, into the casks with buckets or pails—the casks must be supposed placed on the *stillings* or stands with legs, which are troughs made to catch the beer working over; in general, any sufficiently capacious tub, placed beneath the cask-stand, answers the purpose. The casks must be placed *tilting*, or inclining to one side, that the yeast and beer working over may have a single channel. From this overflow, settled and clear from the yeast, the cask must be attentively filled up, two or three times a day; but it is generally necessary to have a reserve of one or two gallons, as a supply for the waste of fermentation. In three or four days, the weather being cool, the working will be over.

Very particular brewers have a reserve of worts with which to fill up, not choosing to make use of the impure yeasty overflow. LEVEL the cask, FILL UP well, within an inch of the bung-hole; if the drink be for KEEPING, add a few fresh hops: hammer down the BUNG, in a piece of coarse cloth, with a piece of bladder between bung and cloth, covering

it, if thought necessary, with a SAND-BAG. The VENT-PEG should be left out a few days, until all be quiet, and then driven down. This ale may be drank in six weeks, particularly if brewed in spring; will be excellent at Michaelmas, and in perfection in the following spring. DRY CELLARING, and not too warm, is the object, whether for wine or beer.

The above DIRECTIONS, it has been seen, are for brewing ale only, and that of sufficient strength for any ale, even if to be kept several years, in cask or bottled; but, as I have before hinted, old ales and beers lose much of their salubrious properties by age, acquiring others of a different character, as the deep drinkers of such soon acquire sufficient experience. Three sorts of beer are sometimes made under the same process, namely, BEST ALE, from the first worts, TABLE ALE from the second, and common SMALL BEER afterwards: but the usual and preferable mode is to make ale and small beer; and when the latter is required to be better than ordinary, a small quantity of fresh malt is *capped* on for that purpose.

SMALL BEER after the ale. The last ale wort having run off, and a copper of boiling water being ready, pour into the mash-tub fifteen gallons of water, reduced to about 190 degrees of heat, that is to say, at a considerably greater degree of heat than that used for the ale, but not boiling. (Cold water is also used.) It is to be observed, that the goods (grains) being now saturated, will no longer absorb. This mash is to be well stirred, covered as before, and to be left for about *one* hour. The copper being cleared of the last ale wort, will be ready to

receive the small beer, together with the used hops, to which may be added, if thought necessary, a small quantity of fresh hops, and the wort boiled AN HOUR. Some boil their small beer worts but half an hour. It must be noted, that small beer, after ale, will not break on the surface like ale. This time must be spent in cleaning the mash-tub for the reception of the last wort, which must be strained into it, and there left to cool for working, supposing no other cooler at hand. It will require considerable more yeast than the ale wort. I have some reason to remark, that a careless servant may require a caution to put out the fire, before he begins to empty the copper.

SMALL BEER wort may be moderately warm, when the yeast is put to it, and also when cleansed it ought not to be cold. If it work freely, it may be cleansed the day after: it may, however, be proper to remark, that small beer after strong can never be equally wholesome with small beer brewed by itself, or the ENTIRE SMALL. We have thus made from two and a half bushels of malt, a half barrel and a *pin*, (four and a half gallons) and a firkin and a *pin*, of, it may be expected, good ale and good small beer.

ENTIRE GUILE small beer, or small beer brewed by itself;—four bushels of fine and good pale malt will make two barrels, or 72 gallons, in two mashings or worts, to be afterwards, when cooled, put together. The liquors to be taken at the degrees of heat stated above. Two pounds of fine hops will be sufficient, or less. For the FERMENTATION, use a quart, to three pints, of yeast. In twenty or twenty-four

hours, the weather being cool, the beer will have worked sufficiently, and the yeast skimmed from it will be very good for use. To be casked, filled up, and treated with as much care as ale.

Many years ago, I was in the habit of brewing this keeping small beer, from the finest Herts white malts, and the best hops. It was of the colour of pale sherry, and in the heat of summer was more agreeable than strong beer, indeed a most pleasant beverage. I frequently bottled it with success. At that time, Sir Edward Walpole, who had the strange habit of drinking Port wine and small beer mixed, equal parts, and could procure no good small beer in London, importuned me much to procure him a supply of fine keeping small.

VARIATIONS in practice, and RULES. Instead of putting the boiling water at first into the mash-tun, and leaving it covered up, by way of seasoning the tun, as has been directed, some, for expedition sake, and the saving of fuel, do not boil, but only heat the water to the requisite degree of temperature, and mash with it immediately. I know of no objection to this practice. They say boiling exhausts the good qualities of the water. Others shoot only half the malt at first into the mash-tun, stirring it up, and afterwards adding the remainder with the liquor; but so small a quantity as two or three bushels, poured in at once *leisurely*, may be well separated and prevented from *balling*, the operations of pouring and stirring proceeding together. Some fancy that a reserve of a few handfuls of malt, sprinkled over the surface, will help to retain the steam. They next

make the sign of the cross upon it, by which they do not always prevent evil spirits from guzzling their sweet wort. In tending the COPPER, care should be taken by stirring down the hops as they rise to the surface, that it do not boil over; when boiling proceeds too rapidly, it will be necessary to set the copper-grate door open awhile to damp the heat. After boiling has proceeded a few minutes, the hops will sink. In emptying the copper of worts, the necessity will suggest itself, of putting a convenience across the cooler or tub, two cross sticks for instance, in order to hold the sieve, or straining basket.

Those family brewers who choose to be hypercorrect and curious may provide a SACCHAROMETER, the purchase of which, in a tin case, is six shillings. With this they may find the specific gravity, or strength of the wort, previously to fermentation. Two bushels of good malt will yield full eighteen pounds of *saccharum*, the matter of sugar. The first wort, from malt of that quantity and quality, per barrel of thirty-six gallons, will weigh about thirty pounds heavier than water; the second, fifteen; and the third, or small, about nine pounds heavier than water. The old brewers judged of their worts by weighing a pint, or a quart, the goodness being supposed to consist in the gravity; the most curious of them also using a close cover to every process, in order to prevent the waste of evaporation.

FERMENTATION. My brewer, in this part of the process, took no further pains, than to distribute the yeast over, and stir it into the surface. Others

are particular to put the yeast into a hand bowl, which they set afloat on the beer. In three or four hours, the yeast will work over the bowl into the beer, when the bowl is to be turned bottom upwards, and a fermentation communicated to the whole mass, or the bowl of yeast and wort mixed is placed at the bottom of the empty tub, and the worts laded upon it. Some say the first, or common method, merely spreading the yeast on the surface, has the speediest effect. Too rapid and speedy fermentation, however, is not desirable, lest by excess it exhausts the spirit of the beer; indeed, slow working, provided in the end it be thorough and effective, and not carried to the other extreme, need not be regretted; but in FILLING up the beer, when in the casks, the remaining yeast should be well worked out, yeast being a narcotic and unwholesome matter.

In cold weather, when it is difficult to raise a ferment, it is an old practice to fill a gallon or two gallon stone bottle with boiling water, well corked, and put into the beer, in order to infuse and spread a heat: also, to quicken the fermentation, salt, flour, and the whites of eggs are used; but I apprehend when good yeast fails, those are not likely to succeed, and that time is the real remedy. As to the stock of beer brewed, according to the old maxim, better to have rather too much than too little, as the casks must be filled; since if there be not ale enough, they they must be filled up with small beer, or, perhaps, with a decoction of malt and hops, put in blood warm or cold. In case of a surplus, two and a half gallon *cags*, or stone bottles, are the proper vessels.

London Porter. I have brewed beer, and ales, under various other names, but never porter. Now, as this beer is so universal a favourite, it may as well be brewed in a private as in a public brewhouse; and as many cannot dispense with it at their meals, they may perhaps be induced to try whether they cannot, as well as a much cheaper, brew an equally genuine and good porter at home. I have already made the necessary distinction between the absolutely noxious ingredients used in brewing porter, the use of which cannot be denied, since they have, in a multitude of instances, been detected and fined, and those which are necessary, at the same time not actually noxious. They are, indeed, chiefly diuretic, and some of them nourishing and promotive of accretion, as the *black malts* (treacle), and liquorice root. Nevertheless, porter can never be equally nourishing and salubrious with beer, which is the genuine and simple product of malt and hops.

But porter is more salubrious and less hurtful than either the town or country ales of the brewer, since the ingredients in the composition of porter are seldom, if ever, so noxious as those used in ales, which are scarcely ever brewed without the addition of *coculus Indicus*, or grains of paradise, or both. The former is a most deleterious drug—a poison, of which from long experience, I can instantly detect the flavour in beer; the latter are heating and unwholesome. I remember in former days an ale-brewer, who, in his first essay with the Indian berry, was so liberal with the quantity used, that he did not dare to send it among his customers, but found one in a

porter brewer, who purchased, at a low price, the guile, to start among his beer. Of late years, the *conscientious* wine-dealers have used a new and dangerous drug in their white wines.

Good ale or beer, however, is too heavy to dilute full flesh meals, and perhaps inferior in that respect, to porter, to which again, good small beer or water is a superior and better diluent; strong ale being in its proper place, consorts afterwards with the dessert, or accompanies a light supper, or the noon luncheon, after fatigue. It is moreover due, from an impartial writer, to note that much of the vulgar ribaldry, against the porter brewers particularly, may well, and ought to be spared. So far as I know of the porter to be had at present in the metropolis, it is a brisk, full-bodied, and pleasant beer, which will bottle well, referring particularly to that of Messrs. Barclay and Co.,—Whitbread,—and Reid. With the profits of these great and opulent traders I have nought to do, but to remark my little doubt that the patriotic grumblers thereat would not, in their own case, be too modest to accept them from a bountiful public.

Having acknowledged my unacquaintedness with the peculiar method of brewing PORTER, I cannot, I believe, do better than take as a text-book, a small and useful tract on the subject, written upwards of thirty years since, by Mr. Samuel Child, a brewer. He assures us, on his own experience, that as good porter may be brewed from a single peck of malt, as from a brewing on the large scale; and that which appears to me yet more strange, another writer avers as much with respect to proportional equality of quantity, as of quality. For its singularity, I give

the quotation—"I have observed, that malt brewed in these small quantities, makes a much stronger liquor in proportion; that is, eight pecks of malt, brewed separately, will produce forty gallons of excellent beer, much better than eight pecks brewed together. What the cause of this advantage is, I have not exactly ascertained, but am fully satisfied of the fact."

Among the peculiar porter ingredients, however, enumerated by Mr. Child, I am sorry to find that baneful drug, *coculus Indicus*, which he has also given in his *recipe* for ale. It is well he omitted *opium*, which has often poisoned both porter and ale. The following is Mr. Child's bill of fare for the production of genuine porter, exclusive of the Indian berry; and the private brewer may assure himself that, should the following ingredients fail to make him fat, at any rate they will not poison him. The expenses are calculated on the market rate of a former day, Easter Monday, 1824.—

	s.	*d.*
One peck of ground malt . . .	2	4
Liquorice root, bruised, ¼lb. . .	0	2
Spanish juice, or liquorice . .	0	0½
Essentia bina	0	2
Colouring	0	2
Treacle	0	1½
Hops, ¼lb.	0	8
Capsicum and ginger	0	2
Coals and wood	0	6
	4	4

The above charge, our guide warrants, will produce six gallons of *good* porter, for which the publican now charges ten shillings, himself paying to the brewer forty-five shillings per barrel of thirty-six gallons. It must be observed, in giving the common brewer's receipt, he quotes additionally,—salt of tartar, heading, ginger, slacked lime, coculus Indicus, linseed, cinnamon (meaning, doubtless, cassia). We trust no brewer of repute now uses the *coculus Indicus*. The *essentia* consists of moist sugar, eight pounds to one quarter of malt, boiled in an iron pot to a thick syrup. COLOURING is also made of eight pounds of moist sugar, boiled to a medium between sweet and bitter. These ingredients, the ginger excepted, which is put into the beer after it has worked, are boiled in the first wort, forming the basis of the peculiar porter quality and flavour. The HEADING is a mixture of equal parts, alum and copperas, ground to a fine powder, which gives to the porter its peculiarly fine frothy head.

I have already observed on the innoxious qualities of the ingredients used in the private brewing of porter; these are easily to be obtained of the grocer and druggist of any country town, and the manufacturing labourer, accustomed to the flavour and qualities of porter, if economically inclined, may supply himself and family, his rib pulling with him, and standing the fag. The drink will be fit for use after seven days, but will have improved after twenty-one. Mr. Child says, the brewers in his day drew the length of FIVE barrels of porter from a quarter of malt, which great length he seems to have exceeded

in his private recipe. A private brewer may be more liberal at his own option.

PORTER, it seems, must be brought forward, or worked quicker than ale, and when in the casks, be watched, and air given, that they do not burst. Child says, they use a mixture of pale and amber MALT with the brown; and he inclines to prefer the use of amber entirely. A man's experimental choice will best determine this. On account of the variety of ingredients, and particularly of the *essentia*, this beer requires FININGS, which are composed of isinglass, dissolved in perfectly fine stale beer, until it becomes a thin, gluey consistence, like size. One pint of finings is the usual allowance for a barrel (thirty-six gallons) of beer, though occasionally two or three may be required; or it may happen, in favourable weather particularly, that little, or even none, be needed. In general, stale beer not being at hand, a quantity is drawn from the cask itself, to make the finings, but it may not be so effective.

In the manufacture of ALE and small beer, Mr. Child must be no longer my oracle. He unreservedly gives into the habitual adulterations of beer, with sweets, seeds, (1lb. coriander is supposed equal to a bushel of malt,) and drugs, which necessarily produce a spurious, and vastly inferior drink, compared with the genuine product of malt and hops. I will have no COUNTERFEITS in my cellar, nor allow any addition to malt, hops, and liquor, excepting a handful or two of SALT, which seasons all things; of this, the old rule is a handful to each and every boiling of worts. Beer, in truth, may be

made from sugar, and small beer from treacle; an excellent beverage no doubt, for a wasting jockey, or a rare article to give a poor labourer a ground sweat.

I have already alluded to the theories of our chemists on the potatoe. They infer an equality of power and strength in all essences: as another example, an equality between the *saccharum* of sugar, and of malt, assuring you, that in beer making, a certain number of lbs. of sugar are equal to a bushel of malt. (Child fixes the quantity of sugar at 6lbs.) They reckon without their host. The beer of sugar is an unsubstantial, as well as mawkish, sickening beverage, compared with the beer of malt. The admixture of sugar or treacle deteriorates the quality of beer, however in proportion it may be made to increase the quantity. The *gluten* of potatoes is infinitely inferior, in substantial quality, to the gluten of wheat, as is fully proved in the manufacture of starch and bread. According to Mr. Jacob, they are not only making beer from potatoes, but a liquor resembling Muscatel wine. There is no reasoning upon tastes, so I am not about to arraign the taste of Mr. Jacob, or to undervalue his favourable report of this new German vintage, but apprehend I am too old and prejudiced, to relish either potato beer, or potato wine.

There is, moreover, an old adage, that will not always hold water. It has been said—bad small beer is better than none. I remember a poor country smith, in the starvation period of the late revolutionary war, who economically brewed bad small beer, and nearly disembowelled both himself and

his hammer-man. I saw them in the proper guise of skeletons. They cried, "Give us a little good beer, and the rest water." Farmers have often weakened their harvest labourers, by filling them with miserable small beer, whilst the latter have taken every opportunity of drenching the land with it.

The labourer, whose wife is not fully employed, and who has a cool place for his beer, may have successive brewings of a peck of malt, the year through, of strong and small beer; and the recommendation of such economical practice will be kind and patriotic in my country, particularly my lady readers. A convenience to boil four or five gallons of water, a tub or two, and two or three small casks, will make the shift. In the country, skill will not be wanting.

UTENSILS, the London price of new. COPPER is from seventeen to nineteen pence per lb. A new one, gauge 15 gallons, including iron-work, will cost between 48*s.* and 50*s.*; less in proportion for a larger gauge. A MASH-TUB, 6 shillings per bushel, for the number it will work. A TWENTY-GALLON cooler, 10 shillings. Piggin, 2*s.* 6*d.* In general, the wooden utensils to brew two bushels will cost 2*l.* 5*s.*; for three bushels, 3*l.*; for five bushels about 4*l.* A family for brewing a considerable quantity, generally expends about 10*l.* in utensils, including the casks. A wine pipe cut down, as has been said, makes a good mash-tub. Price of half a firkin or pin, 4*s.* 6*d.*; a firkin, nine gallons, 6*s.*; of a kilderkin, 18 gallons, 14*s.*; of half hhd. 27 gallons, 20*s.*; of a barrel, 36

gallons, 23*s*. Our writers on brewing seem to agree in the adoption of one generic term for casks, calling them all *barrels*.

Ana being *à-la-mode*, I may not neglect the opportunity of treating the reader with one, which comes *à-propos* in this place. Perambulating the metropolis, I observed a large cooperage. It occurred to me as a good opportunity, to inquire the present prices of brewing utensils, and whether any novelty or improvement had supervened. The master was called, and he appeared with a due degree of attention. I announced my inquiries. On the sudden, wheeling to the right-about, and turning his back upon me, Mr. Cooper said, with an expression of *sang froid* and much consequence, "If you *wait* on me when I am not so much engaged, I'll tell you all about it." I, in course, preferred seeking another cooper, and of inferior *calibre*.

I should have quoted the price of a steel mill to grind malt, which may be had at Johnson's Birmingham and Sheffield warehouse, Fenchurch-street, London, for 4*l*. 4*s*., and at lower prices. A bushel is ground in seven or eight minutes. There is a new brass vent-peg, which screws into the cask, and is thence tight and secure for any length of keeping. It may be had of any London ironmonger. I have heard, but imperfectly, of some new and convenient implement to draw tastings from the bung-hole, instead of spiling and pegging the cask, which sometimes leads to letting out the drink; a curious instance of which occurred to me lately, with a cask of wine. The *slugs* were observed very busy about the vent-

peg, as if wine-bibbers; and either their or some other suction drew the peg, and set the wine afloat.

Casks. The larger the cask, the longer and better will the beer keep; thence, the butt stands first, and should be set upright. Considerable families seldom use casks below the hogshead for their keeping beer. The wood of new casks, as has been before remarked, will impart its flavour (that of bark and wood) to the beer, during several brewings. Wash first in cold, then in boiling water. Scald with salt and water boiled. Some use lime or brimstone. Or after well washing, keep in them beer grounds, or stale beer. The coopers season the staves, before they are worked into casks, by boiling them in a copper.

To sweeten foxed, or tainted casks.—The radical method is that of the cooper. Unhead the cask, and put in a chafing-dish of coals, on which cast pitch or brimstone, the head being put in loose during the fumigation; or use the scrubbing-brush with a strong ley of *hard* wood or pearl ashes; or pour that *ley* into the bung-hole, boiling hot, letting it remain some time; or malt-dust, boiled in water; or bay-salt. The following was formerly reckoned effectual for a musty cask:—fill the cask with boiling water, not quite to the brim, put in some pieces of unslacked stone-lime, which will immediately cause an effervescence, like the boiling of a copper; but this must not be continued more than half an hour, or the lime may prove as bad as the must. The effervescence over, bung down, but wash out before the liquor be quite cold. All utensils must

be WASHED and SCRUBBED with the most rigid carefulness, after brewing, and placed where they will not be warped by the heat of sun or fire. The casks emptied should remain with the bottoms of the beer within them, tight bunged, in a good cellar, or other cool place.

On CLEANSING beer *fine*.—The old writers on brewing insist much on the common accidents of thick and turbid beer, from the careless and improvident custom of casking it, *bottoms and all*, instead of lading it off as fine as possible. I had once, in my own case, a very pregnant and decisive example of this. When I took Pamber House, near Basingstoke, in 1790, Mr. Wakeford, who was born there, informed me of a difficulty not to be surmounted, namely, that no beer had been, in their memory, or could be brewed there, *fine*. We engaged the old bailiff, who had brewed in the house, probably, during forty years. At first, we were supplied from a common brew-house, within a few miles, the beer from which, drank at supper-time, afflicted me with the most restless and troubled sleep, and infernal dreams. I could well distinguish in it a *q. s.* both of opium and the Indian berry. Our first brewing at home produced the pot-luck of the house, thick beer, which old Duckit insisted was a defect grounded on precedent, thence, in course, admitting of no reform. Like the great *Katterfelto*, of the *Prussian* Death-head hussars, in cases of difficulty, I was apt to call out—"fere is mine vife?"—In short, I persuaded her to inspect personally and carefully the casking of the beer, which she discovered was per-

formed usually by the old man, in the way above reprobated. With the utmost difficulty she induced him to change his method, the happy consequence of which was, that thereafter we had as fine beer as any in the county; which we often proved by placing a decanter of it side by side with the finest of Allan and Smyth's sherry, which it equalled in brightness.

Another defect of precedent also, we found there. A fine Morello cherry-tree had, for many years, blossomed luxuriantly, but never borne fruit. How the same doctress made a radical cure in that case likewise, until the branches required propping, in order to enable them to support the weight of fruit, I have related in another place. In fine, to return to beer, the following, however old, are sound and excellent maxims: "Let your wort lie some time in the underback, to draw it from the *fæces* there; be equally careful to run it off fine, out of the cooler into the tun, and from the tun into the cask: in all which several places, the wort and drink may be had clear and fine: there will then be no more sediments than are just necessary to assist and feed the beer, and preserve its spirit. But when time and convenience allow of the utmost nicety, recourse may be had to the sieve of *Hippocrates* (a flannel bag in a hoop) for straining off the bottoms."

To FINE thick beer. Brewers' finings (as before) to be obtained at the ale-house, are the most usual remedy. Or ISINGLASS cut small and boiled, one ounce in three quarts of beer, kept all night to cool, and put into a hhd. perfectly COLD, the beer being

well stirred. The beer to be tapped in a week. It is said sometimes to make the drink flat. Or two or three handfuls of SCOURING SAND, or small red gravel, well stirred in. Or, a pint of WHEAT boiled in two quarts of water, the liquid being squeezed through a fine linen cloth. One pint of this decoction suffices for eighteen gallons of beer, preserving and feeding as well as fining. The decoction, I think, should be made with beer. Also the fine flour of kiln-dried HORSE-BEANS, white of EGGS, with shells powdered, and various other articles of a similar nature are used. For turbid and bitter beer, perhaps alum might succeed, since it purifies and fines water.

To recover PRICKED or ACID beer. The alkaline substances most in use, are SALT OF WORMWOOD (tartar) and chalk. I must own, I have never succeeded in this case to my satisfaction, either with beer or home-made wines: for having neutralized the acid, that indeed not completely, a considerable sediment has been deposited, which, after a while, and particularly during draught, would re-ascend, and the drink become sub-acid, with a flavour of the chalk. If any thing of this kind can be effectual, it is probably the salt of tartar joined with an infusion of hops, the drink to remain undisturbed several months, then to be drawn off the lees into a fresh cask.

A tradesman in my neighbourhood, a particularly curious and skilful private brewer, of many years' experience, informs me that he has tried, without success, most of the old methods of recovering sour

and turbid beer, and that he prefers taking the opportunity of brewing, when he starts his pricked beer upon the grains in the mash, after the small beer, running it off directly: it will then run clear of the acidity and foulness, which are left behind in the grains. He afterwards puts into it the boiled and used hops, and perhaps a few fresh, casking all together. His beer is kept in butts placed upright, and he finds that two bushels of malt absorb ten gallons of water.

For FOUL and VAPID drink—three quarters of a pound of BEAN FLOUR (as above) with one pound of RAISINS, stoned and chopped, the whole made into balls with the beer, and put into the cask, which must be bunged, but a vent-hole left, as a fermentation will arise, and perhaps continue twenty-four hours. For ROPY beer, two handfuls of bean flour, with one handful of salt, are recommended as sufficient for a butt. After all, it will be easily conceived, by the reflecting reader, that PREVENTION, compared with the best of these ancient nostrums, is as strong beer to pump-water. Elderberry juice was formerly much used in the country, to heighten the colour, and give a peculiar flavour to old beer.

Instead of *believing* in the following receipts, let the reader recur to the old saying, and go about to prove them. To keep drink from being PRICKED IN THE CASK—Put an iron pad over the bung-hole; over that pad, work a piece of clay, big enough to cover all, and exclude the air. This will preserve the beer sound, during thunder, or under exposure in the

vault or cellar to concussion from carriages above; and more particularly where, from want of a better convenience, beer is placed above ground.

To check FERMENTATION in the *Cask*. We have at this moment a small latter brewing, and the beer has continued to work during several weeks, in the cask. Instances have occurred, of beer, though brewed in the season, fermenting throughout the summer. The old brewers recommend, in the case, to draw off a quantity, from a quart to a gallon, and replace it with raw wort. I have tried cold beer without effect. They also direct to burn brimstone beneath, or about the cask; or, which perhaps is the best remedy, rack the beer into a fresh cask, previously well steamed with sulphur, burning rags, or other convenient mode.

To prevent beer from becoming acetous, or, in the common phrase, hard; the following method is as simple as efficacious, grounded on the plain principles of chemical science, and confirmed by actual and successful experiment. It is nothing more than to suspend a knob of marble by a piece of tape, from the bung-hole to near the bottom of the cask, upon which marble, being pure carbonate of lime, the acid quality of the beer acts on its incipient formation, the acidity consequently becomes neutralized, and thus the drink is kept from turning hard or sour. In our experiment, the marble was considerably eaten away, excepting where the tape encircled it, and the beer remained sound and fresh to the last drop. It will also succeed equally with wines, British or foreign, or other drinks, whilst in cask, and in which there may be an appre-

hension of acidity. This remedy was extracted from the Oxford Journal, where, it may be presumed, it originally appeared, but whether it be the discovery of the person who published it, or whence derived, is not said. Should it pass successfully general muster, it will prove a matter of very great importance to all persons concerned in those liquors to which it refers.

The usual recipe for the home manufacture of yeast—boil one pound of flour, one quarter lb. of brown sugar, and a small table spoonful of salt, in two gallons of water for one hour. When milk-warm, bottle it and cork it close. It will be fit for use in twenty-four hours. One pint of this yeast will make 18lbs. of bread. This receipt for artificial yeast comes recommended to me, but I have never yet had occasion to make experiment of it, as in every neighbourhood in which I have resided, chiefly in Surrey, Middlesex, and Hants, the neighbouring families, from their brewings, mutually supplied each other, or recourse was had to the nearest brewhouse.

SECTION XX.

On Orchards, Planting, and on the making of Cider and Perry, by an experienced Planter and Maker of Somersetshire.

" What soil the *Apple* loves, what care is due
To *Orchats*, timeliest when to press the fruits,
Thy gift, Pomona, I presume to sing."

Philips's Cider.

CIDER and PERRY, the fermented juices of the apple and the pear, may be considered the *Native Wines of England*, as we have no other native juices which spontaneously undergo the vinous fermentation, so as to become, at least in any considerable quantity, agreeable and stimulating liquors. We have, it is true, many other fruits, the juices of which, with art and various additions, become wines: such are the juices of the *grape*, the *gooseberry*, the *currant*, the *raspberry*, the *elderberry*, the juice of the *birch*, &c.; but although these juices can be made by the addition of sugar, and the assistance of yeast and brandy, potable liquors, and those too, which are, by many persons, considered agreeable: yet even such *wines* are more or less expensive, and are, after all, poor succedaneums for the vinous products of warmer climates. We are, therefore, justified in

designating Cider and Perry as the native wines of this country.

But, notwithstanding the process of making both cider and perry is extremely simple, we must not, therefore, conclude that no art whatever is necessary to obtain these liquors in perfection: for the process, though simple, is, nevertheless, one which requires care and circumspection in its conduct, and without which, no good liquor can be made. In proof of this it may be stated, that the writer of this treatise made very excellent cider from the apples of an orchard of which his predecessor scarcely, if ever, made one good hogshead, during the long period of thirty years! The fruit being the same, the error arose entirely in the management of it after it was obtained from the trees.

It is, however, necessary to observe, that the cider to be obtained from the simple juice of the apple in cider counties, is not such as is usually sold in bottles in London: the bottled cider of London is, in great measure, an artificial compound, and no more to be compared to genuine cider, when properly made, than elder wine can be set in competition with real Madeira or Port. The bottled cider of the metropolis has, it is admitted, one desirable quality in all fermented liquors, *briskness or friskiness*, occasioned by its containing a considerable portion of carbonic acid gas, which is set loose from it by the least agitation; but such bottled liquor will be, in general, found deficient in strength: that is, in the quantity of alcohol which it ought to contain. The *sweetness* of such bottled liquor is usually produced

by the addition of sugar, in which it remains in an undecomposed state; but no sooner is the temperature of the liquor increased by removal into a warmer atmosphere or otherwise, than the vinous fermentation goes on, disengaging of course considerable portions of carbonic acid gas.

Naturalists have arranged, not only the APPLE, the PEAR, and the QUINCE, under the genus *Pyrus* or the PEAR, but also many other species, to the number of twenty or more, of which it is not necessary to name any other here, except those just mentioned; and the *Pyrus prunifolia* or SIBERIAN CRAB, a small apple now well known in many of our gardens, a native of Siberia.

The original of all our *apple*, as well as *pear* trees, appears to be the *wild crab tree*, and the *wild pear tree*, both found wild in various parts of Europe, and also in this country. But that which is very remarkable, the wild variety of the APPLE, *Pyrus malus*, and of the PEAR, *Pyrus communis*, is armed with *thorns*. The innumerable varieties, both of apples and pears, now found in this country, and other parts of Europe, have been from time to time obtained by domestication of the wild trees, and by sowing the seeds, by which continual new and valuable varieties are produced. Such, indeed, is the number of varieties now to be obtained both of *apples* and *pears*, that whoever desires to rear apple and pear trees, must make a *selection* from the number; it is scarcely possible, in a moderate-sized orchard, that he should be able to rear the whole: for we find on referring to *Loudon's Encyclopædia of Gardening*,

a catalogue of *two hundred and forty-one apples*, and of *one hundred and fifteen pears ;* and these are by no means all which are to be found in this country.

The history of the introduction of the apple-tree into this country is not exactly known; but it is conjectured that it was first introduced by the Romans, to whom twenty-two varieties were known in Pliny's time; and that afterwards, at the conquest, the stock of varieties was greatly increased; it is said that Pepins were brought into England by *Mascal*, who wrote on fruit-trees in 1572. It has been said, too, that the apple-tree has attained the age of a thousand years; but there is little doubt that it often arrives at, and sometimes exceeds, the age of *two* hundred years. Some apple-trees attain an enormous size. If a tree produce ten or twelve bushels, it is, however, generally considered a large crop; but some trees in the west of England occasionally produce apples enough to make five or six hogsheads of cider of sixty-three gallons each, old *wine measure :* thirteen bushels being there usually considered sufficient to produce one hogshead of cider.

Philips, in his poem, describes the soil, &c. best adapted to apple-trees; but we must not forget, that his precepts are written, chiefly, if not entirely, for the climate, soil, and seasons of Herefordshire; and that although some of those precepts are good when applied to particular cider districts, yet to others they are not always applicable. In the level districts of Somersetshire, for example, the *west* wind is not commonly a desirable visitant, particularly when the

orchard is a few miles distant from the sea, that wind being often highly impregnated with saline particles which are peculiarly injurious to vegetation; and therefore orchards so situated ought, if possible, to be sheltered by high trees planted on their borders, so as to obstruct the current of such air, always preventing, however, such trees from extending their branches over the apple trees.

Of the mischievous tendency of *north*, *north-east*, and *east winds* to orchards generally, there can be no doubt; and, therefore, similar shelter by trees, as in the former case, is always desirable. We may add too, that north, north-east, and east situations on hills, or the sides of hills, ought, for an orchard, to be generally avoided; indeed, we should say, that *all hilly* situations, to whatever point of the compass directed, for orchards, should also be avoided; nevertheless, gentle slopes at the foot of hills, if of a good depth of soil, are usually esteemed favourable situations; but rich bottoms, with a good depth of dark soil, and a subsoil of clay, are always to be preferred for an orchard where *cider* is the chief or whole object in planting it: a shallow soil, wherever situated, with a gravelly or rocky sub-soil, will be found generally bad for the apple-tree. But *pear-trees* are much less particular in regard to the nature of the soil than apple-trees, they succeeding in, it has been said, almost any soil; yet in the deep clayey soils of Somersetshire they do not succeed as well as the apple, and hence are not, as in Gloucestershire, objects of much interest to the farmer.

Yet opinions in this respect among cultivators differ. Some even say, that many valuable fruits delight most in light sandy soils, particularly those which ripen early; others assert, that "the *most highly-flavoured* liquor is produced by a soil," which has been termed, "shallow loam, or a lime-stone basis." What is meant by "most highly-flavoured" we are not told; but if it be intended to assert, that the strongest cider, which is cider containing the largest quantity of alcohol, is produced from such a soil, we must beg leave to express our doubts, or at least to question whether an orchard in such a soil has ever produced a *plentiful* crop; for we think it very possible to obtain, with suitable management, good cider from some apples produced in the most unpromising soil; but we must not forget, that in planting apple-trees their *productiveness* is the grand thing to be attended to: we have known the *styre* apple so unproductive in a peculiar soil, as to be obliged to be cut down; the same may be said of the *Burgundy pear.*

The opinion that apples which ripen early do not make strong cider, has been controverted; but many experiments which we have made in Somersetshire, with the *codlin* and the *stubbord* (an apple extremely pleasant to eat, and which ripens early in August), fully confirm this statement: the best apples for cider are unquestionably those which ripen about or rather *after* Michaelmas. Although we have made very pleasant cider from both the fruits mentioned, we could never, with all our care, make strong cider

with them. The plain truth is, those fruits contain much less sugar than many other fruits which ripen later in the year. The difference in the quantity of sugar in different juices of the apple, is most easily ascertained: take one pint, wine measure, of the juice as soon as it expressed from the apple; that juice which weighs the most contains the most sugar, and will, of course, make the strongest cider. A wine pint of juice, to make good and strong cider, ought to weigh from seventeen ounces to seventeen ounces and a half; if it does not weigh *seventeen* ounces, the cider, we may be quite sure, will be poor and weak. But we shall have occasion to revert to this subject again.

Having determined the site and soil for an orchard, we may now say a few words on the mode of planting it. And on this subject too, opinions are very various: most persons, however, prefer purchasing their trees of the particular sorts which they may wish to rear; and purchased trees from those who rear them for the purpose of sale, answer in general very well: it is even supposed, that a change of soil from that in which the trees have grown, is also very often advantageous; and as few, in planting an orchard, would choose to wait till they have produced a sufficient number of trees under their own immediate nursing, the trees to be planted in an orchard must, of course, be bought. But were we about to plant an orchard, and disposed to wait the rearing of trees under our own inspection, we should proceed thus:

Let the space in which every tree is designed to

stand in the orchard (each tree being at least twenty-five feet distant from the other) be well dug about one foot deep, and in a circle of about eight or ten feet in diameter. Then let a proper quantity of apple-seed, obtained from the pressed apples of the cider-house, be strewed over each circle, and let the earth be raked over the seed so as to cover it properly. This process may be effected any time between the end of October and March. November is perhaps the best time. During the next year a great variety of plants will come up in each circle; as the summer proceeds, let the weak and small plants be pulled up, so as to make room for the strong and vigorous ones. The next year let them be further reduced, so that if there be in each circle six, or at most ten vigorous plants, there will be more than enough. The third or fourth year, they may be all grafted with such fruit as you may choose: and in the course of a year or two, the strongest and best graft in each of the circles being suffered to remain, the rest may be either thrown away or removed to other plantations; and thus a valuable orchard may be reared more early, by many years, than by the plans now adopted; for, do what we will, *transplantation* in general retards the growth of trees, two or three, and sometimes many years. The best kind of graft for the young plant, is, beyond a doubt, the *saddle* graft, the operation for which every gardener knows how to perform. It is scarcely necessary to mention, that the circles must be, of course, well fenced from the depredations of cattle, and be hoed

and well cleansed from weeds, during the spring and summer seasons.

The sorts of fruit for cider may be various. Indeed an opinion is entertained by some persons, that a mixture of various kinds of fruits makes the best cider: others, however, scrupulously keep some of the sorts apart: the cockagee in the West is thus kept; but we, nevertheless, question the utility of it. Every county has its peculiar fruits. In Somersetshire, we have the *Cadbury*, the *Dorsetshire Red-streak*, the *Long-stemmed Veining*, the *Styre*, the *Jersey*, the *South-ham*, the *Cockagee*, the *Pit-crab*, and many others. We might enumerate also those of Devonshire and Herefordshire, but it certainly cannot be necessary.

In regard to the *ripening* of apples, one thing ought to be most carefully noted; that although many apples ripen on the trees, and fall off of themselves, or with a slight shaking, others do not comply with these conditions; some, although not ripe, fall off the trees spontaneously, but require to be kept for many days, sometimes two or even three weeks, before they become in the state usually called ripe. Attention to this is of importance, as upon the *perfect ripeness* of the apple depends chiefly the goodness of the cider: a fact not sufficiently attended to by cider makers in general.

The great harvest for apples is in the month of October; but when the crops are large, many apples remain to be gathered, particularly those which ripen late, at the beginning of November. There are different practices in various places, for collecting the

apples. Some cause them to be picked up almost every day, as they have fallen from the trees, those which have fallen being most commonly ripe, or approaching the state of ripeness; others, for expedition, or convenience, when the apples appear ripe, shake the tree, and get them all down at once: the first is, we have no doubt, the preferable mode. After the apples have fallen from the trees, or are otherwise removed from them, it is very usual to lay them in a large heap or heaps, in the orchard, for some time, till an opportunity offers for making them into cider; but we do not consider this the best practice. If apples are exposed in heaps, in the open air, they should be where the sun and wind could have access to them; but as, in the autumn, the air is usually surcharged with moisture, and the sun frequently invisible, we prefer a large airy room over the cider-house, if to be obtained, where the apples may remain, and there be kept not only till they become soft and ripe, but till they have also shrunk considerably in quantity, which they will not fail to do, by parting with a great portion of the water which they contain, while thus kept; the longer indeed apples are kept, provided they are not *decayed*, the better and stronger will the cider be, for the very obvious reason, that the aqueous portion of the juice is diminished, and the saccharine portion in larger quantity relative to every gallon of the juice.

You may indeed obtain, by shaking down your apples and converting them into cider immediately, a much larger measure of juice from any given number of apples, but your cider will be poor and

unfit for keeping. We have alluded to this circumstance in the second paragraph of this paper: the person alluded to used always to grind up his apples soon after they fell from the trees; he scarcely made one hogshead of good cider in his life; the writer of this adopted a contrary course, that is, he kept his apples as long as he could without their being rotten, and he never made one hogshead of *bad* cider, after he understood the theory of it. We mention this fact here again, because chiefly upon it depends the goodness or badness of all cider of almost any situation, and with almost any apples; it must be nevertheless admitted, that there are some apples of the wild crab kind, which contain so much acid, and so little sugar, as to be totally unfitted for making good cider. We must, however, remember, that the acid taste of apples is by no means a criterion of their quality as cider apples, for it not unfrequently happens, that a bitter, ill-tasted, and even acid apple, will make better cider than one of a sweet and pleasant taste; the *stubbord* and the *cockagee* are exemplifications of both extremes.

Various methods are adopted for converting apples into *pummace* or *pommage*, as apples after being ground in an apple-mill, are called: two, however, are mostly used; one consists of a bruising-stone and a circular trough, worked by a horse; the other a mill, which has two pairs of rollers, (many will have only one pair,) the upper pair being stuck with cogs and dags, and the under pair being of very hard wood turned smooth, and worked with cogs; it is usually turned by two persons. The upper rollers reducing

the apples to a coarse pulp, and the under ones reducing it to a very fine one. The apples, by either of these methods, being properly bruised, are carried to the press, and a square heap of cheese is made with them, by alternate layers and clean wheat straw; or else, by putting the pummace into hair bags or hair cloths made for the purpose. If straw be used, it should be perfectly sweet, and free from fustiness. The cheese, after standing for some time, is to be pressed down gradually, and at length the greatest possible pressure is applied, till all the juice is pressed out. Presses are of different kinds: we have seen a press which has answered tolerably well, consisting of the trunk of a tree about one foot in diameter, and ten feet or more long, fixed at one end, and brought down by a windlass and rope connected at the other; but the more common cider-press consists of one or more wooden or iron screws, turned by a lever and windlass. The apparatus is, of course, firmly fixed, so as to sustain the resistance which is necessary.

The juice thus obtained is then to be strained through a hair sieve, and put at once into the cask destined to receive it. The cask should be full, or within an inch or two of being so, in order that when the fermentation takes place, the feculent matter floating at the top may flow out at the bung-hole. As soon as the fermentation is sufficiently completed to permit a bung in the hole, it should be put in, at first slightly, and after some time, a week or two, or more, tightly; *nor should the liquor be at all disturbed till it is wanted to be drank:* for if these few and simple directions be carefully followed, the fruit ripe

and good, and kept as above directed, the best cider will be unquestionably obtained.

It is scarcely necessary to insist upon all the utensils which are used in the making of cider, being not only of the proper kind, but clean, sweet, and wholesome; and that the casks should be perfectly sweet, sound, and tight; for if any leak occur in them, that leak will form a communication between the external air and the liquor within, so that vinegar, instead of cider, will be frequently the result.

It may be asked, perhaps, why we have not given sundry details, particularly concerning the *racking* of cider, with which books that treat on this subject are more or less filled. Our only reply is, that *keeving*, as it is called, of cider, as well as *racking* it, are wholly unnecessary; and that, if our directions be properly complied with, the best cider will be made by those means. We may add, besides, that *racking* cider generally does it mischief; it not only gets rid of a considerable portion of *carbonic acid*, on which its *briskness* depends, but also of some part of its alcohol, on which its *strength* depends, and, therefore, we advise neither; it is, however, *barely* possible that a very strong bodied cider, made late in the autumn, or near Christmas, might be rendered sooner fit for drinking, by exciting the vinous fermentation more effectually by *racking;* but this occurrence is very rare, and is one which the present writer has never witnessed.

What, then, is the theory of making cider? Simply this: The juice of the apple contains an acid called the malic acid, some extractive matter and gluten,

more or less sugar, and a certain quantity of water; the water being the largest proportion. The moment this compound is expressed, it is disposed to go spontaneously, at almost every temperature above the freezing point in this country, into the *vinous fermentation*, which is, strictly, a chemical process in which the sugar is decomposed, and alcohol formed from it; and at the same time, a large quantity of carbonic acid gas is disengaged, while a considerable portion usually remains in the liquor. That the strength of the cider is in exact proportion to the quantity of the sugar contained in it, when expressed from the apples; that if the sugar be in large quantity, the cider, after having undergone the vinous fermentation, will contain a large quantity of alcohol, and be an intoxicating liquor; and if the sugar be in small quantity, the cider may be indeed slightly intoxicating, but as the alcohol is not in sufficient quantity to keep it, it will, soon after it is made, by the slightest communication with the air, go into the acetous fermentation, and become a poor vinegar, as cider, if strong and exposed to the air, will become a strong vinegar. The directions given above for making cider are founded on these principles, and have been for many years practically acted upon by the writer; upon them, therefore, the novice in the making of cider may fully rely.

Of the method of making *artificial* ciders, such as we have spoken of as sold in bottles in London, we do not think it necessary to speak; and sure we are, that any one who has made and drank cider after our directions, from the pure juice of the apple,

will soon despise the trash sold as cider in this metropolis.

From experiments which we have made, any addition of sugar to good cider, immediately on its being pressed, does not improve the *taste* of the liquor, but its *strength* certainly. Four ounces or more of sugar added to every gallon of *poor* cider, that is, one which weighs less than seventeen ounces to the wine pint, will be of advantage, if mixed with it *at the time* it is expressed from the apples, not afterwards.

From what has been said, our opinion of bottling genuine and good cider may be estimated; the only way to obtain cider in its greatest purity and strength, is to obtain it from the cask in which it was put as soon as it was expressed, and from which it has never been (till drawn for being drunk) removed. If such cider be bottled, it ought, if possible, to be bottled without coming in contact with air.

In regard to making PERRY, from every thing that can be gathered on the subject, pears require the same treatment in all respects as apples, as well as their juice, subsequently to its expression. But in regard to keeping pears after they are taken from the trees, more circumspection is necessary than for apples: for many kinds of pears become *rotten* within, while they still show a fair outside, and hence it is not probable, that such pears, being in a state of decomposition, can produce a good liquor; a liquor which has been likened by many persons to *champagne;* and as the *briskness* of *champagne*, as well as *cider* and *perry*, depends upon the large

quantity of carbonic acid gas which they contain, it is clear, that exposing any of those liquors to the atmosphere, either by *racking* or otherwise, must tend to destroy that briskness on which, particularly in *champagne* and *perry*, their agreeableness so much depends. Hence, too, we learn the necessity there is for keeping such vinous liquors, even in this country, in a cool place.

We may just add, that according to Mr. BRANDE'S *table of the proportion of spirit* or *alcohol, per cent.* by measure in various fermented liquors, of *Cider*, the highest average is 9.87; the lowest 5.21; of *Perry*, 7.26; of *Champagne*, 12.61; of *Elder wine*, 8.78; of *Claret*, 15.10; of *Hock*, 12.08; of *Burgundy*, 14.57; of *Madeira*, 22.27; of *Sherry*, 19.17; of *Port wine*, 22.96; of *Lissa*, 25.41. The *best* cider, according to this statement, contains hardly one-tenth of spirit, while *Lissa wine* contains more than one-fourth of its bulk in spirit.

Of apples and pears for culinary use, and for the dessert, it is not our province here to speak; but we cannot avoid observing, that a *garden* laden with the valuable varieties of both the apple and the pear, cannot be seen without admiration; that the stubbord of summer, and the nonpareil of winter, the golden and other pippins, afford a variety to suit every palate; that there the bergamotte, the jargonelle, a numerous *et cætera* of melting pears await us, and evince, at once, the knowledge and industry of man in training; nature exhaustless, and never failing to supply him with an almost infinity of fruits.

Of cider as a summer beverage, nothing need be said in praise; it is one of those agreeable liquors, particularly for those using much labour in the fields, that will perhaps be never equalled, certainly never surpassed. And although we might not think quite so highly of it as John Philips, there will be no impropriety in concluding this treatise in his words:

> "Where'er the British spread
> Triumphant banners, or their fame has reached
> Diffusive, to the utmost bounds of this
> Wide universe, Silurian cider borne
> Shall please all tastes, and triumph o'er the vine."

The author entertains a high opinion of this essay on cider; but on one point, and that of no slight importance, he feels it difficult to agree, either with the poet, or the thoroughly informed and practical ciderist. As old English vinous luxuries, both cider and perry are certainly estimable, and will scarcely ever be neglected; but as a drink to satisfy the thirst of the labourer, surely good fresh small beer, equally assuaging thirst with cider, and far more nourishing, ought to be preferred; not to overlook the fact, that the body being debilitated, and in a high state of perspiration, cider has been known to occasion dangerous colics. Of the two evils, poor cider is worse than poor small beer: in point of nutritive power, no comparison can subsist between barley and apples.

SECTION XXI.

British Wines, with Remarks on Foreign.

Wine, that maketh glad the heart of man—and that maketh sorrowful the heart of the intemperate man. Wine! that inspires us, and fires us with courage, love, and joy! Wine—that is the milk of old age, as the writer has some years since, and does at the present experience, having derived a similar benefit in the artificial and wilful old age of youth, when he found more consolidating and strengthening effect from the genuine tawny wine of Oporto, than from bark and steel. Wearing out this miserable remnant of life, he now, from the example of Voltaire at his more advanced period, seldom exceeds the portion of a single glass per day, saving and excepting in company, a rare occurrence, when he bravely ventures on half a dozen, and that with impunity.

About ten years since, I published in one of the Annuals, the following sentiments on the present subject, and on a late reference, finding no reason to change my opinions, I here repeat them:—

"It is certain that, neither the culture of the grape, nor the manufacture of wine in England, has yet arrived at any degree near to perfection. Immense quantities of wines have indeed been made of late years, and chiefly from the currant, but it has been mostly for the purpose of admixture with the

foreign. Quality and improvement have not been so materially the object, as the quantity required. Since the war, Cape wine has been introduced and consumed among us in very considerable quantities; but of late years, its consumption has been reduced to almost nothing, except for mixing with foreign wines. The quality is, however, generally inferior, probably from the want of skill and capital in the colonists; moreover, the wine has not proved to be a good keeper. The motives for a still greater extension of the home manufacture of wine, and its farther improvement, are as follow:—its superior cheapness, since it may be produced, of the very finest quality, at little, if any more than one-third of the price of ordinary Cape wine, and with that attachment to the flavour, which great numbers of persons acquire by use. One great defect in our home-made wines, arises from the supposed economy of using very coarse sugar, which imparts to the wine the ordinary and disagreeable flavour of molasses. A species of foreign wine is commonly made in England, namely, the Orange and the Raisin. The first, if not deteriorated by coarse sugar, is a fine cordial wine, at three years old nearly equal to Frontiniac; and the latter from good Muscatels, and skilfully manufactured, is fit to set upon any moderate table. It requires no sugar; and further, is real wine, as it is not only produced from the grape, but from that of the warm climates. In France, *raisin* is the general term for grape, and raisins or preserved grapes are said to retain the full quality of the fruit. A plentiful and ripening season for the grape occurs but seldom

and periodically, in this country. When we have that good fortune, the grape abounds so much beyond all other fruits in the vinous juice, that pure wine may be made without the addition of water; and in three years, the wine will be in perfection. When water is used to the grape, a portion of sugar is added, as in other home wines. The reason our grape wine is often so thin, is the want of a press in common use, by which the skins of the fruit and part of the stalks, that is to say, the murk, is embodied with the wine, and contributes to its substance and richness of flavour. The green gooseberry makes a strong wine and of a fine Madeira colour; its chief defect is, perhaps, a peculiar *gooseberry* flavour, which is scarcely got rid of in many years' keeping. The white currant makes a very excellent and pure wine; the black, a wine still more powerful. It has of late become the custom, and very successfully, to train the black currant to the walls and sides of houses, as the grape. Apricots also are said, on some few experiments in plentiful years, to make a fine wine. In conclusion, however ancient the manufacture, there is much room for improvement in it; and we submit to our numerous country readers, a prospect of the gratification and the advantage of sporting good wine on their tables, at eight pence the bottle."

To treat on the subject generally, it must be acknowledged, that neither our soil nor climate are, in any considerable degree, appropriate or equal to those of warmer and more constant climes, for the production of wine. This fact, had it needed an experiment, received a decisive one, some threescore of years since,

in the vineyard speculations of Surrey, though the wine was said to be far superior to any previously made in England. Correctly speaking, the juice of the grape, solely, is entitled to the denomination of wine; but from the uncertainty of the grape crop in this country, both the necessity and the profit compel us to manufacture wines from a considerable number of our other fruits, a plan of national economy which has proved hitherto successful, and which will be found more so in proportion to the improvement which may and ought to take place in the manufacture.

On our home manufacture of *foreign* wines, I have borrowed the following curious particulars from the statement of Mr. Blackett, which affords an ample catalogue of the numerous articles from which they select, who are engaged in the honest and profitable speculation of originating or improving foreign wines and spirits, in our own country. This ought to act as a caution to us in the purchase of foreign wines, and in the material consideration of whom we purchase them: and as this fraud is an ancient and inveterate disease in our country, and as we are ever said to evince a preference and attachment to sophisticated and adulterated articles of all kinds, it behoves the minority of pure wine lovers, to countenance and patronize the manufacture and consumption of home-made wines, and their improvement to the highest possible degree of perfection. The immediate fatal effects of these adulterated foreign wines, have been experienced by individuals at various periods; in one memorable and well known instance, some years since, at a tavern dinner in the country, not many

miles from the metropolis, (Salt Hill) where several gentlemen, empoisoned by the wine, lost their lives. These monitory facts ought not to escape from the public recollection. The present writer, from curiosity in trying the wines of certain pretenders to superior excellence, has, in three or four instances, found his stomach and head affected in a very alarming manner. Within the last month, having drank part of a glass of Madeira from a bottle in which remained only two or three glasses, I was seized some time afterwards with violent retchings and vomitings, which continued above an hour. Something acted in a peculiar manner, by vellicating the intestines, as it seemed to me some chemical ingredient. Violent palpitations of the heart, succeeded with vertiginous affections of the head, and it was unsafe for me, during several days, to walk without support. I had constantly remarked in drinking this wine, that it left the above noted peculiar acid sensation in the bowels, and I experienced the described dangerous effects, from drinking the no doubt chemical contents near the bottom of the bottle. That which makes this occurrence most extraordinary is, that the wine was purchased from a highly respectable house; in course, we must suppose, it had been adulterated abroad. A more harmless adulteration is indeed said to have been, of late years, a regular practice at Madeira, where are constantly a number of ships laden with Cape wine.

In the year 1829, the dinner company of Sir John Douglas, Bart. of Roxburghshire, consisting of six persons, were almost immediately after tasting their wines, which were Teneriffe, light French wine, and

Champagne, seized with vomiting and severe pains in the bowels, and a peculiar affection of the stomach, the leading symptoms tallying exactly with those which I have described in my own case. The whole party continued to suffer in this way, during three or four days. Poison being suspected, the remains of the wine in the bottles was subjected to chemical analysis, and in the Champagne alone arsenic was detected. There seems to be no probable conjecture how arsenic should find its way into this wine, unless, according to an old and once too common practice, the wine had been fined with that death-dealing drug. Notwithstanding this accident and most fortunate escape were the subject of general notoriety at the time, the intelligence occasioned special little of attention.

Extract from the Remarks on Adulterated Spirits and Wines, by Powell Charles Blackett, Surgeon RN. MR. CN. FLS. Surgeon Extraordinary to His late Majesty, when His Royal Highness the Duke of Clarence, &c. &c.—*Reece's Gazette of Practical Medicine.*

" Unless the lower orders alter very much in regard to cleanliness and their modes of living, they will continue to be a degenerate set of people, a misery to themselves, and a disgrace to their country. If they would well weigh the old saying, that every glass of spirits is a nail in their coffin, and drink instead of this pernicious stuff, wholesome and good beer, they would themselves, with their wives and families, be a credit to society, and a stay to their country; but now, instead of that, they are themselves a disgrace, their wives and families parish paupers, dirty beggars, nay worse, very often thieves. O, ye dram-drinkers!

if you knew what you swallowed to destroy your brains, and to prey on your very vitals, the most depraved of you would be deterred from it; at least reflect on the infatuation of the deadly draughts—composed of spirits from the feints and refuse of all other spirits, and only undergoing one simple process of distillation—to which are added oil of vitriol or sulphuric acid, oil of turpentine, oil of juniper, oil of cassia, oil of carraways, oil of almonds, sulphuric æther, extract of orice root, extract of angelica, extract of capsicum, or extract of grains of paradise; sugar, rum, sour cider, and lime water. This mixture is sold under the name of cheap gin!

"Brandy and rum are also manufactured by these cheap sellers, especially that called British brandy; which is composed of spirits of wine, vinegar, orice-root, raisins, and vitriol, flavoured by the brandy bitter, prepared by infusing in rectified spirits, cassia, carraway, camomile flowers, bitter orange peel, Indian berry, and other deleterious drugs: or cherry-laurel water, instead of the brandy bitters, which is more potent, but highly pernicious and poisonous. To give a kernel flavour and a hot pungent taste, the following are used—extracts of capsicum and grains of paradise—for colour, burnt sugar, and other nastiness. Rum is adulterated with similar compositions, with the addition of ales, porter, and shrub, to give it the particular taste and flavour of old Jamaica; very low-priced Leeward Island rum, and plain rectified spirits, forming the base of this unwholesome drink. Hollands, whiskey, cordials, and compounds, are all made up in the same disgraceful way. Wine,

instead of being a blessing to society, is converted into a curse, owing to its fabrications and adulterations. What must be the results to a patient, when instead of pure and genuine wine, he is given a composition of bad brandy, cider, sloe-juice, log-wood, Brazil-wood, sal-tartar, gum-dragon, berry-dye, extract of almond, Cape, cherry-laurel water, gum benzoin, sugar of lead, nay, even arsenic?

"For Port wine fabrications and adulterations, the sailors' black strap or benecarlo, Figuera, the red Cape, are used; and to give it richness, a little Mountain: then sal-tartar to make it crust; for fulness of flavour, gum-dragon; for colouring, berry-dye or log-wood; cider to make up quantity, and brandy-cow to keep it. Brandy or rum-cow is obtained by putting a certain quantity of water in fresh emptied butts, which is allowed to stand a certain time, long enough to extract the whole of the spirit from the staves—what sailors call—to bull the cask. The adulterators of sherry, either pale or brown, generally use Cape wine, British raisin wine, cider, brandy-cow, extract of almond cake, cherry-laurel water, gum-benzoin, high-coloured British brandy, sugar of lead, or arsenic. To discharge the colour, skimmed milk and lambs' blood, in more or less quantity, according to the colour desired. Madeira undergoes nearly the same process, excepting that, cheap Vidonia, and a twentieth part of common dry grots, are used in its composition. Vidonias are generally fabricated from cider, or British wine, and neutral flavoured rum, subjected to the other additions, as Sherry and Madeira. Bucellas is generally composed of Cape

wine, dry Lisbon, and brandy-cow. Tent, hardly any genuine in this country. Red Cape is adulterated by cider, and coloured by berry-dye. This berry-dye is a colouring matter, extracted from the German bilberries. Cape Madeira and Cape Sherry are generally produced by mixing together spoiled and musty wines with cider, brandy-cow, and a proportion of the other ingredients, cherry-laurel water, &c. fining the mess with lamb's blood, and if sour, adding carbonate of soda. Thus cheap Burgundy, Hermitage, Hock, Sauterne, Claret, Champagne, and other wines, are adulterated and fabricated, to the increase of dyspepsia, &c. &c. Claret is generally composed of Spanish red wine, rough cider, berry-dye or Brazil-wood; and the Champagne, of gooseberry wine, cider, perry, Cape wine mixed up with ropy Champagne, softened by the addition of sugar of lead; these ingredients, by good management, will produce good Sillery, and sparkling Champagne. The cider generally used for this purpose is merely turnip cider, more pungent than genuine cider, and fitter for the practice of adulteration, having less malic acid. Is it surprising that, in this country, frauds should be used in regard to wines and spirits, when even in the wine countries it is difficult to get it genuine? Oporto itself fabricates Port wine; Bourdeaux, Claret; the Champagne district, Champagne; and so with Burgundy and others. I knew a friend, who when at Paris some years back gave a dinner—he went to a wine merchant and ordered a variety of French wines, which that day appeared excellent; a few bottles of each were left, which he carefully put away, thinking

to give a friend, at some future period, a treat: about three weeks after this grand dinner, he invited a friend or two to partake of these superior wines; but when he drew the corks, he found in the bottles a stinking and ropy composition. He remonstrated with the French wine merchant—the Frenchman said, you ordered wine for such a day, was it good? the answer was, yes; 'well then, said the merchant, that is enough, I did not send you wine for that day three weeks.' The upper classes are also as subject to adulterations and fabrications as the lower."

While touching on the subject of foreign wines, as an *amateur*, I feel bound to acknowledge the general public obligations to Mr. Redding's late excellent treatise; a work which, so far as my experience has hitherto extended, I judge entitled to commendation, as the most comprehensive and replete with solid and curious information, of any hitherto published, British or foreign. He assigns a great superiority, and shows a decided preference to French wines; but it will doubtless remain a question, whether they be of sufficient substance and corroborative heartening power, so to speak, for winter use, in our moist and chilling climate, and whether any can be found in France, equal, in those material respects, to Port and Madeira? Mr. Redding's chief objection, however, to those, our favourite wines, is the addition of *alien* alcohol, or spirit, which they contain, whence we conclude, he does not disapprove them genuine; and he further recommends a rich and powerful Spanish wine, which hitherto has not been usually, if at all, imported into this country. Surely, if any

wines would pass among us, *minus* all but their own native alcohol, Port and Madeira are those; but it must be acknowledged, that we have nationally a strong predilection for spirit in our potations, even though ebriosity be not the order of our day, comparatively with former days, when our *bons vivans* drank with closed doors, and few departed until they were carried out—and to speak of the *canaille*, the common address to them, in London, flashed upon the front of the gin-shops, was, "a good drunk for a penny, and clean straw for nothing." Mr. Redding observes that the price of Port was two shillings and half a crown the bottle in 1730, but it was two shillings years after I became a Port drinker, and when the taverns raised it sixpence, much and general complaint was the consequence. The force of national habit has been strongly exemplified in the case of Port wine, which, previous to the Methuen treaty, in the third of Anne, had so little favour from British palates, that the import of a few hundred butts would have overstocked the market. I have an individual example to exhibit in my maternal grandfather, who living at the period of the Methuen treaty, became so enamoured of Port, and drank of it so plentifully, that he died of gout twenty years afterwards, with literally and actually a glass of Port in his hand, which my mother witnessed. Inflammatory matter, the parent of gouty obstruction, is also essentially promoted by variety of luxurious high-seasoned viands. Mr. Methuen and his son were, in the first instance, agents of government, sent with the grand fleet to Cadiz, and it is probable they were subsequently settled at Oporto.

With reference to the above noticed practice of adding spirits to foreign wines, in particular to the strong wines of Portugal and Madeira, it is averred, that the intent is to secure them from the acid fermentation, and to ensure their keeping; yet the lighter wines of France have no such need, nor is such addition customary in that country. The native strength and extreme durability of the German wines, puts all such aid out of question; but the case, I apprehend, to be different with regard to the wines of our own country, even the grape, which, to enable them to keep through any considerable length of years, must be fortified by the addition of spirit, essentially brandy, even otherwise requisite, to impart to them that body and tone, which else they would want, from their deficiency in native alcohol. Dr. Mc Culloch, indeed, denies this necessity in our home-made wines, but his argument would have been more satisfactory, had it been backed by a twenty years' experiment. I have indeed known, on the best authority, British wine, after thirty years' keeping, in the highest state of preservation, yet our wines are undoubtedly at their utmost perfection of body, strength, and flavour at the age of eight or ten years. With regard to such practice, it is highly probable, that an addition of spirits was made on actual experience of its necessity, both for their preservation, and the improvement of strength and flavour in our wines.

It must nevertheless be acknowledged, that some of the Continental wines, Sherry and Madeira particularly, are too often over-dosed with alcohol, rendering them inflammatory to the stomach, and conducive more to the production of the gouty material. In

fine, Mr. Redding's decision is probably correct, that those wines need no other than thin native spirit.

The juice of the grape, in strict and accurate phraseology, is alone intituled to the denomination of wine, the origin of which is buried irrecoverably in the impenetrable recesses of antiquity: and the vine so essentially differs from other productions of the soil, that it succeeds best, perhaps only, in its perfection, on siliceous, sandy, and gravelly soils, where scarcely any other species of vegetation will thrive. "Bacchus loves the hills," but their slopes, not their summits, and will prosper even in the tropical climes, indeed in any but the extreme northern or frozen, whilst he rejoices most in the warmest European. Indeed, I repeat, that it is by grace and courtesy, and through necessity, we honour the juice of our other fruits with the title of wine, to which the grape possesses the exclusive right, as the sole proprietor of the TARTARIC acid, all our other wine fruits being distinguished by the *malic acid*, that is to say, the acid of the apple, pomegranate, orange, lemon, quince, all which the Latins held to be *mala*, or *poma*, apples; whence their production might, in a stricter sense, rather be termed cider than wine. Nevertheless, this secondary wine, skilfully manufactured, may be rendered extremely agreeable to most palates, those of juniors particularly, and equally exhilarating, being fortified by the addition of that noble and even medicinal spirit, the best and purest French brandy: in such state, the richest of them might surely, at any rate, serve as useful and appropriate, even delightful summer wines, taking also into consideration the immense quantity of them which is

actually drank, during both winter and summer, from their fraudulent mixture with the foreign. To economists, moreover, their immensely superior cheapness is no light consideration, and a more important one still subsists, in that insurance from the risk of poison, which families may establish by making their own wines. To conclude this uninviting and too probably tedious branch of the subject, the remedy, granting it at all susceptible of remedy, must proceed from the knowledge and exertions of persons of property, and of that influence which they ought to possess with the dealers in wine. An experienced and correct judge of wine will immediately, or in a short time during its use, detect any improper admixture, and on suspicion a sample of the wine ought to be instantly submitted to analysis by a regular chemist. I am too well aware, from my former experience on other and equally interesting subjects, of the hopelessness of giving general counsel, but there must exist an intelligent and right-minded minority, however small, and to them I address myself, and there rests my confidence. As to the great majority, I humbly salute them with the well-worn but everlasting quotation, *si populus vult decipi, decipiatur,* which being Englished literally is, If the people will be deceived, deceived let them be.

To detect Adulteration. From Husenbeth's Guide to the Wine Cellar.

"CHAMPAGNE wine, if pure from any mixture not belonging to it, forms a star in the centre of the effervescing froth, when poured into a glass standing on the table. Poor and hungry wine, introduced as

Champagne, is thus easily discovered, as are also home-made imitations, whether from the apple, pear, or the gooseberry, many of which, in their sparkling quality, approach to the real Champagne so closely, that they have deceived many pretended connoisseurs; all other wines may be easily tried by slaking a piece of lime stone, and bottling the water, when perfectly transparent, for use, as occasion may require. The proof consists in filling half a wine glass with water, and the other half with the suspected wine; should it turn black and muddy, it is a sign of impure wine."

They must veritably be pretended connoisseurs, who could mistake the fabricated for genuine Champagne; of the same breed precisely with those, on whom could be imposed British for real Holland geneva. The buyers, generally, not the growers, are said to be the adulterators of foreign wines. Since the rational and advantageous equalization of the duties between Portugal and French wines has taken place, and a commercial reciprocity and friendship between the two great, and for ages, rival countries and enemies, have happily commenced, we may expect to purchase the finest French wines at reasonable rates. The choicest and highest priced foreign wines are exported in bottles.

There seems to be no limit to the enterprise of our transatlantic brethren. Who but an American, would have thought of such a speculation, or risked his capital in an adventure of ice from Boston to Calcutta? Through the Bombay papers of September 28th, 1833, we hear that a cargo had actually arrived at the former city, and without a greater reduction in the quantity than was anticipated by the shippers.

This shipment has been made as an experiment, with the intention, if it should prove successful and profitable, of keeping a constant supply in the Calcutta markets; and with the hope, if the business should be placed on a permanent footing, of furnishing the ice at a sufficiently low price to put it within the reach of every inhabitant in Calcutta, in moderate circumstances, to enjoy it as a daily luxury. The shipper of this parcel has for several years supplied the southern part of the United States, the West India Islands, and several ports in South America with ice; and in these places it has become, if not necessary, at least a common luxury of life, extended even to medical practice, as an auxiliary, and in some cases as a primary cure, in many of the fevers, and other acute diseases peculiar to the tropics. The loss on the passage did not exceed from 28 to 30 per cent. A question arises as to its being admitted free of duty, and this point will be brought before the proper authorities.

To proceed with our chief concern—the manufacture of British Wines—it is necessary, primarily, to advert to their number, and to distinguish those which are really worth time and labour, sugar and water; among such, I cannot, in conscience, include wines from turnips, potatoes, blackberries, and the sap and roots of trees, unless I may be also allowed to include tobacco: and, to speak my mind freely, I entertain suspicion, that these are nought but the wines, whose only casks and bottles have been blurred paper, the mere speculations of fertile and active brains. Indeed, I do not insist upon this, but can aver positively, that

I have never heard of any actual maker of such generous and inspiriting beverages, nor of any one who has ever tasted them. And surely, such need have no place in our catalogue, which is replete with so ample a variety of superior materials. Our proper native wine-fruits, those in most general use, I apprehend to be grapes, currants, gooseberries, elder-berries, and cowslips, (the latter *hight* in Essex, pagles). Raisins and oranges, foreign fruits; the former perhaps are used to a greater extent than any other. Raspberries, strawberries, and stone fruits, contribute to furnish the wine cellar, in plentiful seasons; of those the apricot is said to make a generous and pleasant wine, of admirable *bouquet*. The above, noted as the chief, together with raisins and orange, are those producing the only wines, in the manufacture of which I have taken any concern. Of those from mixed fruits, which, to borrow an old stock-jobbing phrase, may be denominated *omnium gatherum* wines, so strenuously recommended formerly by Mr. Matthews to the Bath society, I know nothing, but that, on mentioning them to one of the most experienced wine-brewers of the present day, it did not meet his approbation.

Next come the preliminaries of manufacture, which ought to be judiciously and soundly established and arranged on the unerring principle, that, unless we make a good beginning, we ought not to expect a good and profitable conclusion. Towards this end, the quality of the materials to be used, is of primary consequence, not only of the fruits themselves, and their condition, but of those indispensable adjuncts,

sugar and alcohol. Of the former, perhaps, the moist or powdered sugar is to be preferred, but it must be of the superior, not the common and coarse kind, which imparts to the wine a too high and ordinary beer-like colour, with the flavour of molasses: of the latter, pure French brandy is the only alcohol adapted to the purpose. As to additional cost in these articles, at most it is, comparatively with quality, trifling, and if we aim at superiority we must not be deterred by its necessarily superior expense. This refers materially to the choice of raisins, the low priced and inferior qualities of which make a vulgar kind of ill-flavoured wine. I have said that raisin wine is made in greater quantity than any other of our home-made kinds, which ought, however, to be understood of the wines manufactured for the honest commercial purpose of mixing; for, in regard to private families, it is probable, currant wine exceeds all the rest in point of quantity. A few parting words on the subject of alcohol or spirit. An eminent scientific writer, before quoted, insists that the alcohol does not amalgamate or mix, but remains in a constant state of separation from the wine. Now, as far as my own tact as to flavour, and that of other individuals whom I have consulted, this decision appears to be totally incorrect, not improbably one of those reveries of science so named, in which few scientific tracts are deficient. I have not been able to detect this discrepancy of taste even in new Port from the cask, which, no doubt, had been sufficiently brandied previously to exportation. Again: the additional and assistant spirit is affirmed to be more per-

nicious than the native spirit of the wine, but I am inclined to think, that quantity solely occasions any difference in such respect.

The necessary receptacles, implements, and tools also, with which the wine-brewer works, are indispensably intituled to their due share of consideration—vats, tubs, casks, bottles, tunnels, strainers, press, the whole train of well-known *et cætera*. These must be in the most perfect state of cleanliness and sweetness, since a *taint* once acquired, is never to be eradicated from wine or beer. The excessive care and caution practised in the vineyards of the continent, those of France particularly, with regard to cleanliness in their casks and utensils, will scarcely be attempted by the private family wine-makers of this country; our best ordinary routine having proved generally successful as to preserving the wine free from taint, whether of scent or flavour; but as to the accident of too apparent ruin of the wine, from the acetous fermentation, that may be merely such, arising from causes beyond our control, even after the most strict perseverance in the customary measures of care and prevention. I have never succeeded with beer pricked or turned sour, and but once with wine.

To remove the peculiar scent of the wood from new casks, various means are used,—fill the cask nearly with water, adding, if an eighteen gallon cask, upwards of a pottle of lime; bung it up, and shaking it well, leave it several days. Or, a strong solution of common salt and water. Or, place the cask over a copper of boiling water, that the gas or steam may be received at the bung-hole; this, however, should

not be prolonged above an hour or two, as otherwise the searching effects of the steam being so considerable, the hoops and staves of the cask might probably be loosened. Some prefer the method of burying the cask, half depth, bung-hole downwards, in the garden mould, there to remain a week. It is also said to have succeeded, to fill a musty cask with a strong decoction of pepper and water; but I apprehend, in the case of must, the cooper, with the aid of fire, can be the only effective operator. The cask may be afterwards sulphured, which is performed by attaching to the wooden bung the upper part of a long linen rag previously dipped in melted sulphur and fired. Such are the methods in general use, for sweetening casks and removing impurities, but in the mishap of an inveterately stinking or infected cask, should it be thought prudent to risk the use of such, the *dernier ressort*, or last resource, is in the cooper's unheading the cask at one end, and scraping the inside off, or rather shaving the staves; lastly, using the fire. But prevention here, as in every other case, is cheaper and more certain than the best remedy. This consists in the proper keeping of the casks while empty of all but the lees, in a cool place, not exposed to the weather. Being close bunged and the external air excluded, the fresh lees will remain sound and the cask will be preserved sweet and fit for the next occasion, with only the labour of washing and seasoning with water. It may be worth while to note that, where assistance is wanted in preparing for, and the operation of wine-making, a practical family brewer, man or woman, is the person.

With respect to the storing of either wine or beer, dry cellaring, upon a light, and above all, a chalky soil, claims the preference, as well for preserving, maturing, and perfecting the liquor, as for the long endurance of the casks, which will extend to double or upwards of that to which the same casks would remain sound, in a damp soil with its moist exhalations. Under those disadvantages of position and exposure, the hoops of the casks will crack and burst, in a comparatively short period; and if iron hoops are chosen for greater security, those exposed to moisture will rust and give way in less than half the time they would endure under more favourable circumstances. Thus a well-stored cellar requires constant inspection at short periods, not only on account of the casks, but materially in regard to their contents, to watch their state and to detect any unexpected fermentation, more especially during the summer season, and on the approach of thunder-storms, when every known means should be used to obviate that agitation and ferment, which may either burst the cask or convert the wine to vinegar.

The analogy or similarity of process and management between beer and wine brewing, being nearly complete, to save my readers the trouble of reference, I have in the foregoing pages made various repetitions from the Brewing Section.

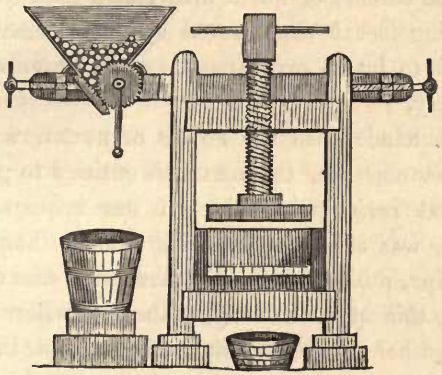
Fermentation, whether in vats or tubs, is generally suffered to proceed uncovered, excepting the case of apprehension that a chilly state of the atmosphere might check and retard it, when it is usual to throw a cloth over the vat, to remain as long as may

be judged necessary. In some of the wine countries on the continent, we learn, they cover their vats, to the end that the alcoholic gas or spirit may not be dissipated and lost by fermentation; leaving, however, a small aperture, through which the aqueous gas may escape. This method, if of any real benefit, is easy enough to be imitated, and will contribute to ensure a thorough fermentation, from the defect of which, in the first stage, our home-made wines are often rendered of uncertain quality and condition, or are totally spoiled. Fermentation is the action one upon another, of the component parts of any body or mass, containing fermentable materials, the initiating powers of which are acids and alcohol: the commencement of this process, is found to require a temperature above 60°, but one of eight or ten degrees higher, promotes it effectually. Nevertheless, the aid of yeast and a toast is usually recurred to, at the commencement. Fermentation is sometimes inconveniently prolonged. This may arise from various causes,—from its imperfection in the first instance; from the original weakness and poverty of the must, when the last stage of its condition will be that of acidity; or from the unfavourable state of the weather. The wine being sound, the usual remedy in the case is, racking it off from the lees, into fresh casks. Beyond this, and after the first or regular species has ceased, a new process commences, styled, perhaps vaguely, the insensible fermentation. This may, with equal reason, be attributed to the gradual changes which the must goes through, in its progress to vinous perfection. The *residuum*, or lees, an effete material, does not retain the power to fer-

ment. A regular and brisk fermentation will generally be completed in three or four days. According to the French chemists and practical wine-makers, the must or juice of the grape of the greatest substance is aqueous to the extent of three-fourths; the aqueous portion differing in no obvious respect from common water. And however strange it may seem, we learn, on the same authority, that this watery part of the must, during fermentation, contributes mainly to increase the quantity of alcohol. Casks should be filled to the bung, and that firmly driven in; for an ullage being left, will either produce acidity or a deadness and flatness in the flavour of the wine. The vent-peg will be at hand in case of any effervescence arising. Wine that is cloudy in bottles, may be uncorked and cleared into fresh bottles, the corks being firmly driven, as bottles are usually laid upon their side. A caution may be in place here, as to *starred* bottles, in which a considerable trade is said to be driven in London. These are bottles with small cracks, ingeniously hidden by additional crust put into the inside.

All our wines, to ensure perfection, should be rich of the fruit, and as much sugar should be allowed as can possibly be decomposed by fermentation, since the whole of it is converted into alcohol. I have yet sometimes known this overdone, or the fermentation had probably been imperfect, the wine (grape) at a considerable age, tasting disagreeably syrupy, and mawkish.

Wine-Press, with Mill for crushing the Fruit.



It is somewhat extraordinary, that in the family manufacture, the wine-press is seldom if ever used, though presses are sold by the London implement makers, among whom W. Morris, of Stones-End, Borough, furnishes them at *2l.* each; also a mill for crushing the fruit, *12s.* Now, it is scarcely probable, that small family wine-makers will choose to incur such an expense as the former; and it is thence submitted whether or not a press on a smaller scale, at about the price of one pound, might be contrived to meet the exigence of the case. Even in some of the foreign wine countries, the ancient practice of treading still prevails. The small makers here continue to squeeze the fruits by hand, or wring it through linen cloths. Among the larger manufacturers, the practice of treading is adopted; and one with whom I have lately conversed assures me, that he causes his fruit to be trodden with boots clean and proper for

the purpose; acting with more delicate consideration than the London baker, who suffered his servant to tread the batches of bread with naked feet. Of this disgusting fact I was assured by a gentleman, who chanced to be an eye-witness, and on whose veracity I can rely.

To conclude with the FORMS or RECEIPTS for our wine manufacture, the GRAPE is entitled to priority. The first *recipe* with which I was acquainted, in Suffolk, was after the following tenor. The grapes being ripe, pull or rather clip them with scissors, performing this operation daily, as the fruit will not all be ripe together. Lay the grapes as gathered, in a dry place, where the sun cannot have access to them. When the quantity required shall be complete, put the mass into a tub or vat, and press them with a heavy wooden rammer or beater, for which purpose, as I recollect, a piece of wood, of sufficient weight, was appended to a staff of convenient length. But care should be taken not to break the grape stones, which always impart a bitter and astringent flavour to the wine. The substance of the fruit being sufficiently reduced, and a tap having been provided at the bottom of the utensil, fasten a hair cloth upon its mouth, and reserve the must which runs freely, in a separate receptacle, as the first and best wine. Then press a second time the *murk*, or mass of materials remaining in the vat, unless a cider-press be at hand, or can be obtained, in which case, the murk may be removed into it, where it will be more effectually pressed. The first and second wines being kept separate, each must be run through a fine sieve, into a well aired and

sulphured cask, in which it may remain ten days, a thin stone or slate being laid upon the bung-hole; after which it may be drawn off carefully into another cask and set as before. If intended for use, as new wine, it will be ready as soon as fermentation shall have ceased, which will be in a month or earlier. It must be observed, this wine could only be made in perfection, when the season had been favourable and the grapes thoroughly ripe, an uncertain contingence in this country. Under that favourable circumstance, I have drank a good, dry English wine, at the age of three to five years. In unfavourable seasons, a good wine, though not equal in richness and quality, may be made from unripe grapes.

Our modern improvement in wine making, granting the improvement, consists of the addition of water and sugar, and in the more frequent, or rather constant, use of alcohol. No doubt, and with respect to the grape particularly, we are enabled to make a vast addition to the quantity of drinkable wine; yet, adopt whatever method we may, it is utterly impossible in this climate to equal the wines imported, in native spirit, body or flavour. As to soil, perhaps the barren parts of the county of Surrey are better adapted to culture of the vine, than any other parts of England; and if such a national advantage, as a successful rivalry with the foreign wine countries, could possibly have been achieved, it must have resulted from the judicious management, unwearied perseverance, and ample funds, applied during the experiment at Painshill, of which so satisfactory a relation was published a few years subsequently, by Sir Edward

Barry, from the accounts furnished by the Honourable Charles Hamilton, the original experimenter and promoter. The influence of the proprietor's name, the novelty and fashion of the thing, bore it up, until stern, uncompromising taste and judgment put in their claims, when this vision with a baseless fabric vanished, in all probability, never to re-appear. It was, however, somewhat beyond a nine-days' wonder. The system and practice were undoubtedly borrowed from the French, the most skilful wine manufacturers of the modern world: and such practice has ever since prevailed amongst the best makers of this country, with the error certainly, of using too much water in the process, on the strength of certain, perhaps questionable experiments made in France, and still less calculated to improve the wine-making of England.

GRAPE WINE WITH THE ADDITION OF WATER. To 6 quarts of musk or pulp, add 1 gallon of water, and ¾lbs. of loaf, or fine moist sugar. These materials, for any proportionate quantity, going through the regular process, will make good wine. It is a mere matter of choice, but there is no doubt that fine moist, besides being the cheapest, is fully equal to lump, in all respects for wine-making.

WINE FROM UNRIPE GRAPES. This is an article of some consequence in our variable climate, to those who cultivate the vine to any considerable extent, since an unripe and failing crop is convertible to no other purpose. The same process in reducing the fruit is to be used, as has been directed in making his wine from the pure juice. The husks or skins,

partaking so much of the grape flavour, can occasion no ill effect by being fermented in the cask with the wine; on the contrary, they contribute to its body, strength, and colour. Upon the pulp or mass from 50lbs. of grapes, pour 4 gallons of soft, or the best water to be procured. This having remained during ten or twelve hours, (some leaving it twenty-four hours or more, the grape being peculiarly tenacious,) put it into a coarse canvass bag, or other convenient receptacle, and squeeze out the juice. Pour upon the mass an additional gallon of water, in which it may macerate during ten or twelve hours; when, being pressed, the juice may be added to that first obtained. Put the whole into the tub in which it is to go through the process of fermentation, adding from 30 to 40lbs. of sugar. Stir the mixture, adding a sufficient quantity of water to make the whole consist of 10½ gallons. Cover with a blanket or sacking, and let the tub stand in a moderately warm place.

Fermentation, unless the weather be unusually cold, will commence probably in four-and-twenty hours, without any of the usual measures of excitement. The liquor being fully at work, skim the yeast from the surface, repeating the skimming, until no more yeast shall arise; the first fermentations having been completed, draw off the liquor from the lees and cask it off; without, however, much solicitude about casking the lees of the grape, on which point an observation has been already made. In course, the cask must be filled nearly to the bung, in all cases, or the liquor would either become acid or flat and insipid. The cask should be so placed as to

incline in a sufficient degree to one side, that the overflow from the second fermentations may run off; to catch which, a vessel should be placed beneath. The loss in quantity thus sustained, must be constantly made up from a reserve of liquor for that purpose, that the cask may be always full.

The fermentation having nearly ceased, the bung may be put loosely into its place, and the vent-peg likewise, the latter being withdrawn to give vent to any considerable extrusion of gas or steam. No further signs of fermentation appearing, both the vent and bung-hole may be closed, and the cask left five or six months, or a shorter period, according with the time it may be wanted for use. The given time having expired, the wine should be racked off from its lees, into another well seasoned and sulphured cask. Should the wine not prove fine, no uncommon occurrence, and generally resulting from atmospheric changes, it will be necessary to fine it by the usual application of isinglass dissolved in water; should this succeed, bottling and storing may take place in four or five days: otherwise, or should the wine be too sweet, (a frequent error in making grape wine, which I have before noticed,) a new fermentation may be excited by stirring up the contents of the cask and leaving it during a week or fortnight in a warm place. By these means, the materials, which, floating in the liquor, had occasioned its turbidity, will separate and subside as lees. This method seldom fails, but if it should, after a trial of a month or two, the ultimate remedy is racking off the wine into another cask, to remain until March, the proper time for bottling.

WINE FROM THE LEAVES AND TENDRILS OF THE VINE. The only maker of this wine within my knowledge, was the late Mr. Garnard, the horse painter, who affected to make a wonderful secret of the process so long known. The leaves and stems should be gathered at about half growth, or somewhat later. To make five gallons of this, not very common wine, by way of experiment, 25lbs. or upwards of the articles will be required, upon which four gallons of boiling water are to be poured, the mass being left in the tub twenty-four hours. After pouring off the liquor, the remaining mass must be heavily pressed twice, half a gallon of hot water being poured upon it after the first pressing. The quantity of sugar required will be from 12lbs. to 15lbs. The subsequent management similar to that of the other wines. With respect to making any considerable quantity of wine from the young tendrils, a vinery of some extent will be required to furnish the weight of materials. On a late pruning of my vines, the stalks, some of them particularly large, were replete with a fine sub-acid juice, which might, no doubt, be manufactured into wine. The above rules for working up the unripe grape were chiefly extracted for my convenience, from a small work on the subject; but I apprehend, they originated in that of Dr. Mc Culloch. They agree generally with the best practice which I have heard of or observed; applying equally to immature gooseberries; in brief, as to general process and management, to the making of all our native wines, the mere specific variations being excepted and attended to.

Reference, then, is requested to the article grape, for general management.

GOOSEBERRY WINE. I have remarked that, in most of our fruit improvements, size has been the favourite object, in preference to richness and fineness of flavour; this appears particularly in the gooseberry. A few years since we made two firkins of wine from the common red gooseberry, equal quantities of juice and water. Sugar 2½lbs. and a half-pint of brandy per gallon. Quantity of gooseberries used, accidentally omitted, which, however, varies with the season, the fruit in a droughty season being comparatively deficient. The wine kept well and proved a most pleasant, refreshing, and enlivening summer beverage. Care had been taken to watch the precise period of ripeness in the fruit, since, in a very short time, even a few hours, that superiority is lost—and also to remove the stalks, and take out all unripe or unsound berries. We added the brandy, in the first instance, in the bottle, a deviation from the common practice.

WINE FROM IMMATURE, OR UNRIPE GOOSEBERRIES. General process, as has been stated, the same as for the grape, but a larger quantity of sugar is required, to the amount, on the whole, of nearly 3lbs. per gallon. It may be bottled either in November, or remain in cask to the following March. As in the grape, the murk or husks of the gooseberry may be fermented with the juice, probably, to the improvement of the body, and flavour of the wine. This wine has been honoured with the sounding title

of British Champagne,—to enable it to merit such a splendid title, in effervescence and sparkling, various materials have been added, of which carbonic acid has been the chief.

My kind friend, of many, many years' standing, Mrs. Gibbs, of Brompton, an experienced wine-maker, has favoured me with the following receipts from her practice, and that of her friends; namely, on green gooseberry, currant, elderberry, and mead wines.

Currant Wine. Measure the juice from currants thoroughly ripe, and to every two quarts add one gallon of cold water, and 3½lbs. of moist sugar to every gallon of the liquor. After standing two or three days, and being stirred up occasionally, to aid in dissolving the sugar, it may be casked. The cask being filled up every three days, for a month or six weeks, and the fermentation having nearly ceased, add one quart of brandy to every ten gallons of wine, and bung down. It will not be fit to bottle till a year old.

Green gooseberry wine. To every pound of gooseberries, when in the sound state, picked and bruised, and one quart of water, let it stand three days, stirring it twice every day. To every gallon of liquor, when strained, add 3lbs. of good loaf sugar, (which possesses more saccharine strength than the moist); cask it, and when fermentation shall have ceased, add to every twenty quarts of wine one quart of brandy; and a small quantity (say 1oz. to nine gallons) of isinglass. The wine having stood nine months, use stone bottles, as with this wine, those of glass are apt to fly.

ELDERBERRY WINE. To six gallons of berries add seven of water, a ¼lb. of allspice, 2oz. of ginger, with a few cloves. Boil this murk about half an hour, when it will perhaps have wasted to seven or eight gallons. Squeeze the berries well through a sieve, adding to every gallon 3½lbs. of moist sugar; the quantity then will be sufficient for a nine-gallon cask. The sugar being added, boil till the liquor becomes clear, taking off the scum as it rises. Remove it to a cool place, and cask it when lukewarm, putting into it a piece of toasted bread dipped in thick yeast. Should fermentation not have taken place on the next day, a small quantity of boiling wine will most probably excite it; let it remain about a week, then bung down closely. One bushel and a half of berries will generally yield six gallons of juice.

MEAD. To five gallons of warm water, put twenty pounds of honey—boil full half an hour and skim sufficiently, while boiling. Add a quarter of a pound of whole ginger, scraped. After boiling, pour it into a tub, and while quite warm, set it to work with yeasted hot toast. Mead should remain a year in cask before bottling. Thus far Mrs. Gibbs.

Old bottled mead, as a wine, has borne a high character. We read in a tract published by Mr. Teulon, (of the house of Allan and Smyth), that a gentleman in Spain treating his friends with a bottle of this liquor, they eagerly inquired what wine it was, being, in their opinion, the richest and finest they had ever tasted.

MALT WINE, OR BRITISH MADEIRA. My obliging neighbour, Mrs. Cooper, of Peckham, has favoured

me with the following *recipe*, which she has been accustomed to use :—Thirty pounds of good moist sugar to ten gallons of water, boil half an hour, skimming clean. Pour into a tub, and the liquor being now milk-warm, to every gallon put one quart of strong ale from the working tub. After fermenting two days, cask it with six pounds of chopped raisins, four pounds of brown sugar-candy, one ounce of isinglass, and four ounces of bitter almonds, slightly bruised. After fermentation, add one quart of brandy; stop close, and bottle at the end of twelve months, but another twelve months will greatly improve the wine. Mrs. Cooper, long experienced in making domestic wines, informs me that she has never been disappointed in their readily fermenting; and it certainly should be a rule never to employ yeast, but on the necessity of the case, since the use of beer yeast may have an unfavourable effect on the flavour of the wine.

The following observations and directions for the manufacture of MALT WINE, are extracted from a late scientific and instructive Treatise, by Mr. David Booth. " Pure worts have an agreeable sweetness, with very little extraneous taste; and if fermented without yeast, or at any rate with a small portion, unmixed with hops, wormwood, or any other bitter ingredient, constitute a vinous liquor, which is well fitted for the reception of flavours, in imitation of many species of foreign wines. In fact, malt worts are neither the dearest nor the worst bases for the manufacture of sweets. A very fine ale is by no means an inferior wine. There is a species of *vin de liqueur* from malt, which is sometimes seen at the tables of

the Scotch ale brewers. A pale wort of a very high gravity (between thirty and fifty pounds per barrel) is attenuated down to half its weight; in this state it is cleansed, and a gallon of good French brandy is added to a ten-gallon cask of the liquor. The spirits become perfectly incorporated by the subsequent insensible fermentation, and the wine, when a year old, passes readily for an importation of a favourite foreign growth. This wine is usually drunk without other additions, but may be flavoured with elder flowers, or any of the other aromas."

Recipe of the late Dr. A. Hunter, of York, for MALT WINE.

To every gallon of sweet wort, put one pound and a half of lump sugar. Boil the liquor half an hour, and when about the warmth that yeast is set on, turn it into a cask, and to each gallon put two pounds of Malaga raisins, a little chopped, two ounces dissolved isinglass, and one spoonful of yeast; stir the liquor every day during a fortnight or a month. Bung tightly till the fermentation ceases, when a gallon of brandy should be allowed to every sixteen gallons of liquor. Bung fast in the cask, for twelve months, then rack into a fresh cask, if intended for longer keeping, or bottle. This wine improves greatly with age.

Having never previously tasted, or known any thing of the manufacture of malt wine, I was somewhat prejudiced against it, as apprehending it would retain too much of a beer flavour. Thinking it probable

my opinion may have been erroneous, I have enlarged the more thereon. I still object to the use of common Malaga raisins, preferring raisins of the sun both for this and the common raisin wine; submitting to our wine-makers, that jar-raisins must be yet the preferable species, since the quality of the wine ought to be the weightier consideration, and since a trifling or even a considerable addition of expense is indubitably a minor object.

WHITE OR RED CURRANT WINE, *from the extensive practice of an eminent London Grocer.*

Fruit ripe, and gathered dry. Fix a clean double cloth on the open top of the cask for the fruit, which squeezed by hand thoroughly, a sieve of the fruit good, and sufficiently squeezed, will produce three gallons or upwards of juice. To one gallon of juice, two and a half gallons of water, and to every gallon, three pounds of lump sugar; if moist sugar, four pounds, clean tasted, and of a pale colour, particularly for white currants. The murk being well stirred, and the sugar dissolved, the scum must be removed every twenty-four hours, till it has ceased to rise, a sufficient stirring being given after every removal of the head, which may be kept and filtered for admixture with the must. Fermentation having ceased, rack into a clean cask, bung loose, and at the end of four or five months, the wine being tolerably bright, rack into another cask, but not close, as the bottoms must be run through a filtering bag. The wine being bright when racked, add half a gallon of the best

Cognac brandy to fifteen gallons of wine; but if not yet bright, fine with isinglass, and rack again, before adding the alcohol, stirring it well to promote incorporation. It must not, at any time, be bunged tight; a piece of loose board over the bung-hole, to keep out the dust, is all that is necessary. When fine, it will be fit to drink. It appears to me, that the method is preferable, for obvious reasons, to wait, as here directed, till fermentation has entirely ceased, before the brandy be added. But in general, I entertain some doubt, whether or not the quantity of water in proportion to the juice, might not be advantageously reduced: nor have I known any accident from close bunging down currant wine, which seems necessary for the due retention of its spirit and briskness.

RAISIN WINE. Certainly the choice of good and rich fruit, as hinted above, must conduce to obtaining similar qualities in the wine: and this rule, with the best practice being observed, we might hope to make a raisin wine in this country, nearly equalling in quality the wines of the continent, where the dried grapes or raisins are supposed to retain a full measure of the native richness, strength, and spirit of the grape. We have not, however, yet attained such pre-eminence in this country, our raisin wine being, according to my taste and opinion, among the most ordinary and unpleasant of our home-made species.

To twenty-four pounds of picked raisins, add six gallons of boiling water, and six pounds of sugar. Having stood twelve or fourteen days, and been well stirred daily, pour off the liquor, and squeeze out the

raisins, adding three quarters of a pound of finely powdered super-tartrate of potassa. Cask the liquor, filling up as wanted, and draw off after fermentation shall have ceased. A *bouquet* is sometimes given to this wine, by suspending in the cask a bag of elder-flowers, to be withdrawn, when the wine shall prove to be sufficiently perfumed.

RAISIN WINE, *from the practice of the London Grocer before quoted.*

To every seven pounds of good raisins, one gallon of cold soft water. First, put the fruit into the vat or tub, then the water upon it, stirring well every twenty-four hours, and keeping the fruit as much under water as possible. Cover with a mat or cloth. Every time of stirring taste the liquor, and you will find the sweetness increase until the musk be fit to draw off, of which fitness you will judge by the sweetness going off, and the fruit not rising so much. Do not suffer it to become tart. The weather being hot, the wine will be ready for drawing off in four or five weeks; if in winter, and cold, it may be seven or eight weeks. The cask must not be bunged, but the hole be only covered to keep out the dust. After four or five months, rack off into a fresh cask, as fine as possible, running the lees through a filtering bag. The wine being then bright, add half a gallon of the best brandy to every fourteen gallons: if not bright, fine with isinglass dissolved in some of the wine, putting it in quite cold. Stir the whole well together, and, if bright in two or three weeks, rack into a fresh

cask, and add the brandy. It will be fit to drink in about three months.

ORANGE WINE. To make nine gallons, take two hundred of the finest ripe oranges, and forty lemons, or Seville oranges about thirty, should they be preferred to the lemon. Soft water, eleven gallons. Lump sugar, thirty pounds. Pare the oranges and lemons as thin as possible, and upon the parings pour the water boiling; upon this having stood ten or twelve hours, and being strained, run the expressed juice of the oranges and lemons, adding the sugar. If required, ferment with half a pint of yeast four or five days, when the wine may be casked, and one gallon to one and a half of French brandy allowed. Some substitute sherry, but it is inferior to brandy, beside giving an alien flavour to orange wine. Bung down close. In six months, the process having been duly observed, it will be perfectly fine, this wine being less liable to remain turbid than any of our other wines. The mother of the present writer was celebrated in her vicinity for the superiority of her orange wine, held to be nearly equal to Frontiniac. Her peculiar practice was to boil in the water the whites of thirty eggs for the above quantity of wine.

OMNIUM GATHERUM WINE, *from the recipe of Mr. Matthews.*

"Take black, red, and white currants, ripe black-heart cherries, and raspberries, of each an equal quantitity, except, if the black currants be the most abun-

dant, so much the better. To four pounds of the mixed fruit, well bruised, put one gallon of clear soft water: steep three days and nights, in open vessels, frequently stirring up the mass, then strain through a hair sieve. The remaining pulp press to dryness. Put both liquids together, and to each gallon of the whole, put three pounds of good, rich, moist sugar, of a bright yellow. Let the whole stand again three days and nights, frequently stirring up as before, after skimming the top. Tun it into casks, and let it remain full and purging at the bung-hole, about two weeks. Lastly, to every three gallons put one quart of good brandy, and bung close. If it does not drop fine, isinglass may be introduced and stirred into the liquid, in the proportion of about half an ounce to nine gallons. Ripe gooseberry wine may be advantageously mixed with the above, but must be separately made, and then added."

APRICOT OR PEACH WINE. Take the fruit, as near as possible but not quite ripe, bruise the pulp, freed of the stones, and to eight pounds of pulp add one quart of water. After the murk shall have stood twenty-four hours, add to every gallon two pounds of fine loaf sugar. Cask and ferment, as usual. The same rules hold in other stoned fruit wines.

COWSLIP WINE. Another favourite wine of the author's mother, a cooling pleasant drink for the canicular days, as *he* has experienced, after having assisted in the brewing. The old *recipe*—To six gallons soft water, 12lbs. of the best moist sugar, the juice of six lemons, and the whites of four eggs well

beaten. Boil the composition half an hour, constantly skimming; add one peck cowslips, if fresh gathered; if dry, only half a peck, or perhaps somewhat upwards. To these add the thin peelings of six lemons. Pour on the boiling liquor and stir well; when nearly cold, add yeast and toast, if necessary. Ferment two or three days. Fermentation having ceased, add a bottle of sherry or mountain wine, with 6oz. syrup of citron or lemon. Strain the third day, squeezing the cowslips through a coarse cloth, and straining through a flannel bag. Cask, letting it stand a fortnight; the effervescence having ceased, bung close; subsequently, on the expiration of another week or two, it may be bottled for use. It will be right, however, to note that, one of my daughters being on a visit in Warwickshire about five years since, found her stomach disordered in a very peculiar manner, attended with sickness, on drinking cowslip wine; an usual effect, as she was informed, in that vicinity. Such effect I never heard of, or experienced from this beverage, in former days, and it may not improbably have resulted from some error in the composition or manufacture. Should this wine be intended for keeping, it may be bottled at the end of six months.

Birch Wine. The old *recipe*—Early in March is the season for making this wine, of which I have no experience. The sap is then rising, the leaves not having shot forth, and the juice is thin and clear. The method of extracting the juice, is by boring the body of the tree and inserting taps, usually made of elder wood, the pith being removed. The birch being

full grown, may be tapped in four or five places without injury to the tree; by which means, several gallons of juice may be daily drawn, from perhaps half-a-dozen trees. Should the operation require more than one day, the receptacles for it must be stopped close, and it is necessary to proceed with this wine as soon as possible, after the juice shall have been procured. Boil and skim constantly, and as long as any skim shall arise. Four lbs. good moist sugar to every gallon of liquor, with the thin peel of two or three lemons. Boil and skim again in half an hour. When cool, ferment during five or six days. Cask off, and fermentation having ceased, stop close. Bottle in three months. A proportionate quantity of French brandy or sherry will, no doubt, improve this wine.

WINE from STRAWBERRIES or RASPBERRIES, or their admixture. Strawberry—gather and squeeze the fruit quite ripe, *instantly*. The murk being put into a cloth or bag, press out the juice into the proper receptacle in which it is to ferment, with or without yeast. Fermentation over, bottle and cork fast. This wine would have a delicious *bouquet*, did the fine flavour of the fruit survive the operation of wine making. Curious makers allow to this wine 2lbs. of fine sugar, with half a pint of brandy per gallon; racking, bunging close, and keeping some time. The same rules hold with the raspberry, and bramble, or blackberry.

GINGER WINE *and* GINGER BEER.

Of late years, the flavour of ginger in these articles, particularly in the beer, has attracted the public favour. For the wine of a superior quality, 3lbs. of loaf sugar per gallon will be required; the quantity of powdered ginger, from 1oz. to an ounce and a half per gallon (surely this quantity of the *basis* of the wine is small). Boil for some time before adding the sugar, which must be full 3lbs. per gallon. One ounce of tartaric acid (cream of tartar), previously dissolved in boiling water, may be added; or if the citron or lemon flavour be preferred, boil all together, three quarters of an hour, the rind of a lemon to each gallon having been introduced. The decoction being cooled as quickly as possible, fermentation may be forwarded by a small portion of yeast. The wine requires to be more carefully fermented than the beer, previously to being racked into a cask. If brandy be allowed, one pint to ten or twelve gallons of wine will be sufficient. But Mr. Booth declares against the admixture of alcohol to fermented wines, preferring additional strength in the must, whence additional spirit would accrue, though at the risk of a longer time required to produce maturity. Generally this wine is ready much sooner than any other, yet is a good keeper; and, granting the process of making has been skilfully conducted, it will seldom require fining; with 3lbs. of sugar to the gallon, it may become fit for drinking in two months.

The most approved *recipe* for GINGER BEER To every gallon of water, 2lbs. loaf sugar and 1 oz.

bruised ginger. Boil and skim half an hour, then add, while hot, 1 oz. cream of tartar, and one lemon sliced. The mixture being cool, ferment with fresh yeast, about one table spoonful to the gallon. Fermentation having ceased, which may be in twelve or fourteen hours, the beer may be bottled, which will ripen according to the temperature of the atmosphere. It is often made of much lighter consistence, brewed one day, and drank the next. There are also ginger beer powders sold, from which the article is made instantaneously.

The Russian method of making wine from Cherries or Plums.

The ripe fruit is crushed with the stones. The pulp is then sweetened with honey, the kernels of the stones imparting an aromatic flavour. The mass is then raised to a heat of 70 to 80 degrees Fahrenheit, and fermented; afterwards casked, or poured into stone bottles, with the usual quantity of brandy.

I have thus gone through the list of our native wines of the best character, and most extensive consumption; should any remain deemed worthy of experiment, the rules prescribed in my list, with attention to peculiar quality and with judgment in the maker, will amply suffice. Aware that many of the receipts for wine-making prescribed by books, are merely the result of speculation, I have preferred those of actual and experienced makers; occasionally that of different makers, that the readers may have their election, or try the variety, as a ground for their

own experience. I have also been advised by one or two skilful veterans in this line, to recommend the omission of yeast, whenever fermentation can be obtained without its aid ; as leaven, particularly in the case of excess in quantity, is apt to impart an unfavourable taste to the wine. Finally, one of these friends has instructed me that the murk of grape wine requires to stand longer in the vat than any other. There are some wines, in which the substitution of honey for sugar would be advantageous.

Late accounts from Algiers inform us, that the French settlers are making an extraordinary fine wine from the African grape, long known to be amongst the most ponderous and richest upon the face of the earth.

It has often occurred to me, that a few acres in the warmest part of South Wales might be experimentally and profitably employed in the culture of the vine; not indeed on the old and groundless idea of rivalling the wines of the Continent, but on the more rational expectation of furnishing the London market with a native wine, in all probability superior to that which can be made in any other part of Britain.

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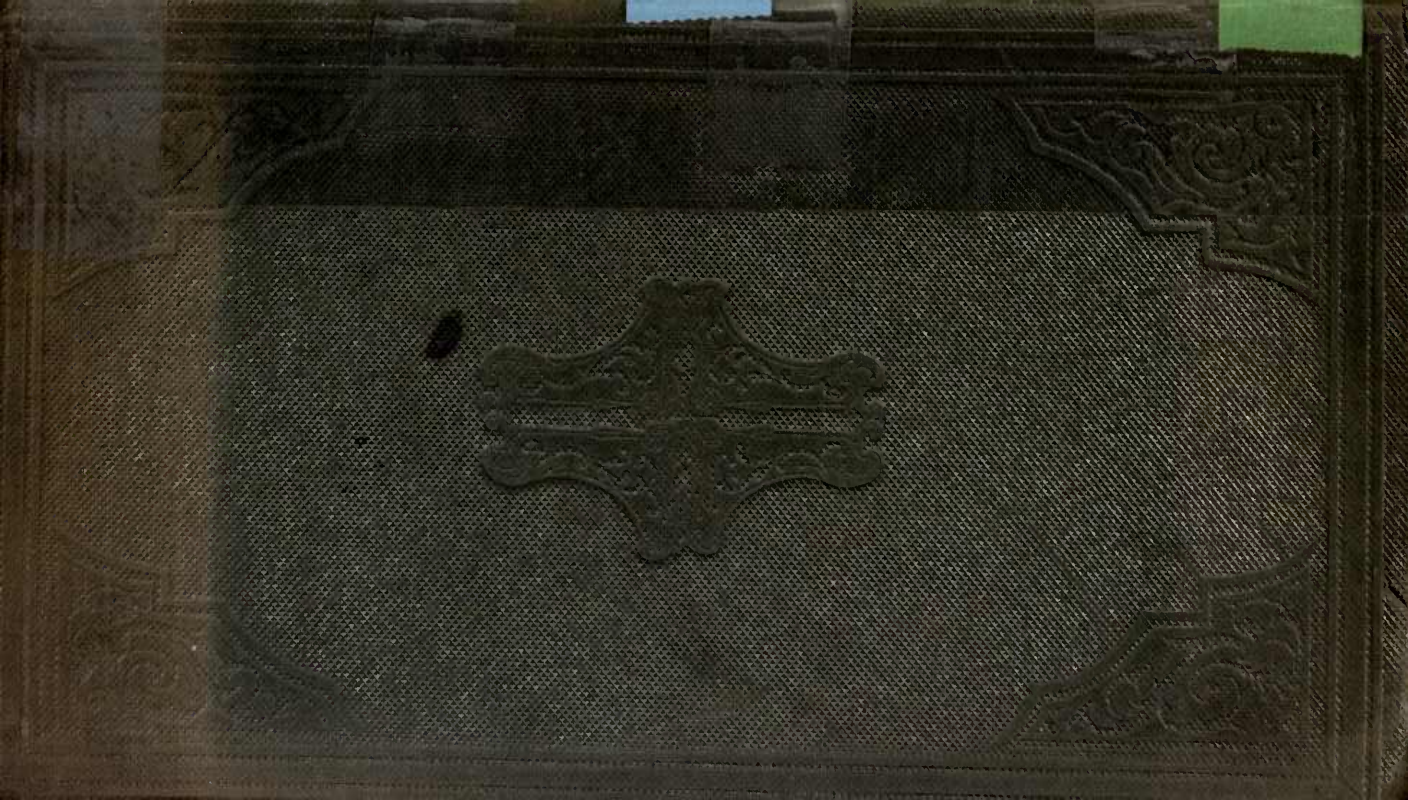
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